

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity	Software Requirements	Location	Maintenance	Link to Image
Science and Technology	land surfaces sciences	hexacopter	DJI	HEXACOPTER	M600PRO	M80DFG23030175	Robin mx gimbal,	15kg	5kg	Sony A7r ii, micasense altum, corning shark	SD Cards	pix4d, Envi, corning	RSC / ESP	20hr services	https://www.dji.com/au/matrice600-pro
Environmental Services and Regulation	Waste and Recovery	Hexacopter	DJI	DJI	Matrice 600 Pro	NJN03408	Gimbal	15.5kg	5.5 - 6 kg	Zenmuse Z30	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Gold Coast	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/matrice600-pro
Environmental Services and Regulation	Waste and Recovery	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03413	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Gold Coast	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
Environmental Services and Regulation	Energy, Extractive and South West QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03411	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Ipswich	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
Environmental Services and Regulation	Minerals and North QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03410	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Cairns	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
Environmental Services and Regulation	Coal and Central QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03412	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Rockhampton	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
Environmental Services and Regulation	Investigations, Development and South East QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03409	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Sunshine Coast	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
Wildlife and Threatened Species Operations	Northern Operations	Quad-copter	DJI	DJI	Phantom 4 Pro V2	NJA37100	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Cairns	As per Internal Departmental Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2
Wildlife and Threatened Species Operations	Northern Operations	Quad-copter	DJI	DJI	Phantom 4 Pro V2	NJA37200	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Townsville	As per Internal Departmental Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2
Wildlife and Threatened Species Operations	Northern Operations	Quad-copter	DJI	DJI	Phantom 4 Pro	NJA37300	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card	DJI Go 4 Oz Runways AVCRM DJI GS Pro	Innisial	As per Internal Departmental Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro
QPWS and Partnerships	Southern Wildlife	Quad-copter	DJI	DJI	Phantom 4 Pro V2.0	NJA37800	Nil	1375 grams (1.375kg)	Nil	20 megapixel camera	Micro SD Card	DJI GO 4	Rockhampton	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2
QPWS and Partnerships	Great Barrier Reef Marine Region, Hervey Bay	Quad-copter	DJI	Phantom 4	Phantom 4	48163285	1/2.3" CMOS Effective pixels:12.4 M	1400g	Nil	1/2.3" CMOS Effective pixels:12.4 M	Micro SD Card	DJI GO 4	Hervey Bay MP Office.	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Great Barrier Reef Marine Region, Moreton Bay	Quad-copter	DJI	Phantom 4	Phantom 4	48163062	1/2.3" CMOS Effective pixels:12.4 M	1400g	Nil	1/2.3" CMOS Effective pixels:12.4 M	Micro SD Card	DJI GO 4	Hervey Bay MP Office.	As per Operations Manual and Operations Procedures Library	

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QPWS and Partnerships	Northern Region - Pest Mgmt Team	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	0AXDE1H0A31997	Camera is standard as purchased.	1388g	Nil	Camera is standard as purchased.	Micro SD Card	DJI GO 4	Cairns	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Cooktown Mgmt Unit	Quad-copter	DJI	DJI P4 Pro Plus Drone	DJI P4 Pro Plus Drone	0AXDE1AOA31441	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	Cooktown	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Coen Mgmt Unit	Quad-copter	DJI	DJI P4 Pro Plus Drone	DJI P4 Pro Plus Drone	0AXDE1BOA33170	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	Coen	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Mossman Mgmt Unit	Quad-copter	DJI	DJI P4 Pro Plus Drone	DJI P4 Pro Plus Drone	0AXDE1BOA30183	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	Mossman MU.	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region Innisfail Management Unit	Quad-copter	DJI	Phantom 4	Phantom 5	07DJE160C10385	Standard camera	1400g	Nil	Standard camera	Micro SD Card	DJI GO 4	Innisfail	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region (Fire Management Team)	Quad-copter	DJI	DJI Mavic Pro	DJI Mavic Pro	08QDE4H01200CA	as standard out of box - camera is attached	743g	Nil	as standard out of box - camera is attached	Micro SD Card	DJI GO 4	Cairns	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Mossman Mgmt Unit	Quad-copter	DJI	DJI Mavic Pro	DJI Mavic Pro	08QUE32001011M	Stock Gimbal/Camera	743g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	Mossman MU.	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Assets & Safety	Quad-copter	DJI	M1P	M1P	08QDE4J01203LU	as standard out of box - camera is attached	743g	Nil	as standard out of box - camera is attached	Micro SD Card	DJI GO 4	Cairns	As per Operations Manual and Operations Procedures Library	

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity	Software Requirements	Location	Maintenance	Link to Image
QPWS and Partnerships	Northern Region - Ingham Mgmt Unit	Quad-copter	DJI	WM330A	WM330A	07DJVCC0C11447	Camera is standard as purchased.	1388g	Nil	Camera is standard as purchased.	Micro SD Card	DJI GO 4	Ingham	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Phantom 4 (WM330A)	Phantom 4 (WM330A)	unknown	4K, 12.4 megapixel, 1/2.3" CMOS sensor	1400g	Nil	4K, 12.4 megapixel, 1/2.3" CMOS sensor	Micro SD Card	DJI GO 4	Byfield	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Mackay Management Unit)	Quad-copter	DJI	MAVIC Pro (M1P)	MAVIC Pro (M1P)	unknown	4K, 12.71 megapixel, 1/2.3" CMOS sensor	750g	Nil	4K, 12.71 megapixel, 1/2.3" CMOS sensor	Micro SD Card	DJI GO 4	Mackay	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Technical Services	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	unknown	4K/30fps, 20 megapixel, (1" CMOS sensor)	1400g	Nil	4K/30fps, 20 megapixel, (1" CMOS sensor)	Micro SD Card	DJI GO 4	Brisbane 400G (Marcus?)	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Spark (MM1A)	Spark (MM1A)	0ASDE7Q1C1000D1	2 - axis gimbal, 12 megapixel	300g	Nil	2 - axis gimbal, 12 megapixel	Micro SD Card	DJI GO 4	Rockhampton QPWS C Wing	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships		Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	OAXCE8D0A30375	Stock Gimbal/Camera	1388g	Nil		Micro SD Card	DJI GO 4	Col Pls advise location.	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region (Dry Tropics Management Unit)									Stock Gimbal/Camera					
QPWS and Partnerships	Ecological Assessments unit	Quad-copter	DJI	Phantom 4 Advanced	Phantom 4 Advanced	TBC	Standard camera	1368g	Nil	Standard camera	Micro SD Card	DJI GO 4	B Wing Rockhampton.	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Mavic Air	Mavic Air	TBC	Standard camera	TBC	Nil	Standard camera	Micro SD Card	DJI GO 4	Blackdown Tableland National Park	As per Operations Manual and Operations Procedures Library	

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity	Software Requirements	Location	Maintenance	Link to Image
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Matrice 200	Matrice 200	0FZDF4C0P20025	Zenmuse X5S with 17m and 45mm lenses	4.53kg	1.61kg	Zenmuse X5S with 17m and 45mm lenses, approx. \$4000	Micro SD Card	DJI GO 4 and DJI GS Pro	Cairns	As per Operations Manual and Operations Procedures Library	

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Name	Division	Unit	Location	Level of Training
Jason Barnettson	science and technology	grazing land systems / land surface sciences	ecosystem sciences precinct	RePL, sub 25kg, AROC
Grant Fraser	science and technology	grazing land systems / land surface sciences	ecosystem sciences precinct	RePL, sub 25kg, AROC
Brett Glosko	Environmental Services and Regulation	Waste and Recovery	Gold Coast	RePL 0 - 7kg, 7 - 25 kg, AROC
John Rice	Environmental Services and Regulation	Energy, Extractive and South West QLD Compliance	Ipswich	RePL 0-7kg, AROC
Doug McCallum	Environmental Services and Regulation	Minerals and North QLD Compliance	Cairns	RePL 0-7kg, AROC
Leeanne Lodder	Environmental Services and Regulation	Coal and Central QLD Compliance	Rockhampton	RePL 0-7kg, AROC
Camille Oliver	Environmental Services and Regulation	Investigations, Development and South East QLD Compliance	Sunshine Coast	RePL 0-7kg, AROC
Corinna Browne	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Cairns	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Paul Beri	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Townsville	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Matthew Brien	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Cairns	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Adrian Gurra	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Townsville	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Bradley Pinchbeck	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Townsville	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Chris Osborn	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Innisfail	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Daniel Guymer	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Cairns	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Jane Burns	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Mackay	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Ren Bone	Wildlife and Threatened Species Operations	Northern Wildlife Operations	Townsville	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Andrew Dunstan	QPWS	Raine Island Recovery Project	Brisbane	RePL, sub 25kg, AROC

Abbreviation	Definition
ARN	Aviation Reference Number
AROC	Aircraft Radio Operators Certificate
GCP	Ground Control Point
PPK	Post Processed Kinematics
ReOC	Remotely Piloted Aircraft Operators Certificate
RePL	Remote Pilots Licence
RTK	Real Time Kinematic
VLOS	Visual Line of Sight

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Date : 4/10/2018 2:27:55 PM
From : "JEFFERIS Celia"
To : "O'CONNELL Julianne"
Subject : asset registration
Attachment : image001.png;image002.png;

Hi Julianne

Damon recently bought a drone. Are we still registering assets in SAP or is it all done in LOC8 now?



Celia Jefferis
Administration Officer, Southern Great Barrier Reef
Area
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 |
Level 2 | 20-22 Herbert Street | Gladstone QLD 4680
PO Box 5065 | Gladstone QLD 4680
Email: celia.jefferis@des.qld.gov.au
Visit us online at www.des.qld.gov.au

Date : 15/10/2018 2:26:16 PM

From : "O'CONNELL Julianne"

To : "JEFFERIS Celia"

Subject : AST-0058429 Drone

Attachment : 2018-19 Asset Sale and Disposal Record.xlsx;image001.png;image003.png;image002.png;

Request has been saved with notification no. 000601042447

Help



Cost Centre 1003225 belongs to a new Profit Centre. Asset transfer is required.

Message No. ZFI037

Diagnosis

The Cost Centre entered does not belong to the same Profit Centre as the previously assigned Cost Centre.

Procedure

An Asset Transfer is required to carry out this change of Cost Centre.

OK

Hi Celia

I have created the drone in Loc8 if you wish to enter into SAP.

Tks



Julianne OConnell

Administration Officer

QPWS | Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4962 5202 I VoIP 35202 E julianne.oconnell@des.qld.gov.au

Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802

PO Box 5332, AIRLIE BEACH QLD 4802

www.npsr.qld.gov.au

Date of Disposal	Barcode Number/Loc8 .No	Asset No.	Asset Description	Document Number in SAP once banking processed
Sept	NQA00942	2401016013 2701012987	Polaris ATV Ranger Diesel	N/A
Sept	AST-0013082	2401007230 2701000548	Truck Rego 258QGY	100032484
	NQA04366	2401021099	Bravo II Sterndrive Spoon bill -1	
	NQA04367	2401021098	Bravo II Sterndrive Spoon bill - 2	
		2401008506	Vessel Spoonbill	
	NJD00300	2401007174	Port Stern Drive Spoonbill	
	NJD03200	2401009176	Engine room fire suppression system	
	NQA02459	2401011790	Port Stern Drive Spoonbill	
		2401021099	Bravo II Sterndrive No 1	
	10002845	2401011095	Plotter Chart Spoonbill	

G/L account no. 470020 Proceed from Sale & Retirement
Company Code 2401
Ledger 01

St	Assignment	DocumentNo	Typ	Doc. Date	PK	Amount in local c
☒	✓	100032353	SA	23.08.2018	40	347.
☒	✓	100032484	SA	28.08.2018	40	22,196.
☒	✓	100052105	AA	22.08.2018	40	2,479.
*	✓					25,023.
** Account 470020						25,023.

ASSET DISPOSAL 2017/2018

[illegible]

Statement of Assets

Cur.	Tx	Cost Ctr	Profit Ctr	Text	Segment
35	PZ	1002264	1050	Tfr to GL470008-Non SAP asset proceed-1400010115.	CONTL
81	PZ	1002264	1050	Tfr to cc 1002793-FI2024753:NASCO - SALE OF 258QGY	CONTL
34	PZ	1000175	1040	2401001640 Kubota Quad bike disposal	CONTL
50					
50					

[illegible]

[illegible]

[illegible][illegible]

[illegible]

Division	Unit	Purpose of Drone Use	RePL Requirement
Science and Technology	land surface sciences	Biomass and ground cover mapping	RePL and sub 25kg certification
Environmental Services and Regulation	Various	Mapping & surveying Compliance Inspections Covert surveillance Incident response	RePL AROC ReOC
Wildlife and Threatened Species Operations	Northern Wildlife Operations	Wildlife assessments, site inspections, aerial survey of wildlife, photo/video collection for media services	Selected operators hold RePL 0-7kg and AROC. Selected staff members internally trained. DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements.
QPWS and Partnerships	Northern Parks & Forests	Compliance inspections Incident response Overt investigations Covert surveillance Mapping and surveying Site Planning Air Photo Capture Asset recording and inspection Mobile Fire Tower Fire Scar Mapping Pest Impacts Monitoring Weed Mapping Cultural Heritage Site Recording and Condition Assessment 'Digital Preservation' of Ruins	Most operators undergo DES Internal Induction and Type training, in accordance with Landholder Rule and sub-2kg excluded RPA category requirements. Selected staff members internally trained. Some operators hold RePL and AROC.
QPWS and Partnerships	Southern Marine Parks	Compliance investigations Incident response Overt and covert surveillance Site assessment and planning Air Photo and Video Capture Asset recording and inspection Marine wildlife assessments inspections	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted inline with CASA and SOP.

Division	Unit	Purpose of Drone Use	RePL Requirement
QPWS and Partnerships	GBR - Far North	Compliance inspections Incident response Overt investigations Covert surveillance Mapping and surveying Site Planning Air Photo Capture Asset recording and inspection Mobile Fire Tower Fire Scar Mapping Pest Impacts Monitoring Weed Mapping Cultural Heritage Site Recording and Condition Assessment 'Digital Preservation' of Ruins GBR Island and sand cay mapping & surveying - Raine Island Recovery Project.	Most operators undergo DES Internal Induction and Type training, in accordance with Landholder Rule and sub-2kg excluded RPA category requirements. Selected staff members internally trained. Some operators hold RePL and AROC.
QPWS and Partnerships	GBR&MP - Sthn GBR	Compliance inspections Incident response Overt investigations Covert surveillance Mapping and surveying Site Planning Air Photo Capture Asset recording and inspection Mobile Fire Tower Fire Scar Mapping Pest Impacts Monitoring Weed Mapping Cultural Heritage Site Recording and Condition Assessment	Most operators undergo DES Internal Induction and Type training, in accordance with Landholder Rule and sub-2kg excluded RPA category requirements. Selected staff members internally trained.
QPWS and Partnerships	South West Region, Southern Parks and Forests	Mapping & surveying Site Planning (e.g. capital works projects) Incident response Photo/video collection (e.g. for project reporting)	RePL AROC AROC 2KG-25KG
QPWS and Partnerships	Park Services	Mapping, surveying assets, photogrammetry	Sub 2kg

	Unit	Responsible Officer	Description of Drone	Manufacturer	Make	Model	Serial No.	Barcode No.	Asset No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity	Software Requirements	Operator Requirements	Base drone cost	Cost including attachments	Acquisition Date	Location	Maintenance	Link to Image	
QPSW and Partnerships	Northern Region - Compliance	Andrew Bates	Quad-copter	DJI	Mavic 2 Pro	Mavic 2 Pro L1P	163DFAF 0017P22	N/A	N/A as this drone is under the low value asset threshold	Hasseblad f2/8 EGV 28mm 1" CMOS 20Megapixels	907g	Nil	Hasseblad f2/8 EGV 28mm 1" CMOS 20Megapixels	Micro SD Card		QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff				Senior Ranger Compliance, Cairns.	As per Operations Manual and Operations Procedures Library		
q	Central Region (Mackay Management Unit)	Caleb Bailey	Quad-copter	DJI	DJI Mavic Pro	Mavic Pro (M1P)	08QCF9KP1246DK	AST-0059937	2401026369	NIL	734g	Nil			Mavic Pro app.		\$2,705	\$2,705	1/06/2019	Clermont			
QPSW and Partnerships	Central Region (Hirroy Management Unit, Blackdown)	Carlin Burns	Quad-copter	DJI	Mavic Air	Mavic Air (M1P)	0K1DF1T28D4225	AST-0060415	2401027252	Standard camera	430g	Nil	Standard camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff	\$1,300	\$1,300	Dec-18	Blackdown Tableland National Park	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Northern Region - Innisfail Management Unit	Chris Roach	Quad-copter	DJI	Phantom 4	Phantom 4	07DE160C10385	N/A	Not required- Listed on the Innisfail Portable and Attractive Item Register.	Standard camera	1400g	Nil	Standard camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$1,698	\$1,698	Pre DES Actual TBC	Innisfail	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Northern Region Technical Support - Fire Management Team	Chris White	Quad-copter	DJI	DJI Mavic Pro	DJI Mavic Pro	08QDE4H01200CA	N/A as this drone is Under the low value asset threshold	N/A as this drone is under the low value asset threshold	as standard out of box-camera is attached	743g	Nil	as standard out of box-camera is attached	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,000	\$2,000	Pre DES Actual TBC	Cairns	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Northern Region Technical Support - Pest Mgmt Team	Colin Doherty	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	0AXDE1H0A31997	NQJ04210	2401039860	Camera is standard as purchased.	1388g	Nil	Camera is standard as purchased.	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,599	\$2,599	Pre DES Actual TBC	Cairns	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Great Barrier Reef & Marine Parks Region (5th GBR)	Damon Shearer	Quad-copter	DJI	Phantom 4	Phantom 4 Pro Plus	11UCF720A0216	AST-0059734	2401025152	Standard camera	1380g	Nil	Nil	Micro SD 64GB	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted	\$2,688		Oct-18	Curtis Island	As per Operations Manual and Operations Procedures Library	dji.com/au/phantom-4	
QPSW and Partnerships	Northern Region - Coen Mgmt Unit	Dan Mead	Quad-copter	DJI	DJI P4 Pro Plus Drone	Phantom 4 Pro Plus	0AXDE180A31170	NQJ04221	2401039944	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,599	\$2,599	Pre DES Actual TBC	Coen	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Central Region (Mackay Management Unit)	Eddie Adams	Quad-copter	DJI	MAVIC Pro (M1P)	MAVIC Pro (M1P)	unknown	AST-0059939	2401027256	4K, 12.75 megapixel, 1/2.3" CMOS sensor	750g	Nil	4K, 12.75 megapixel, 1/2.3" CMOS sensor	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$1,800	\$1,800	Pre DES Actual TBC	Mackay	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	South West Region	Greg Carter	Quad-copter	DJI	Mavic 2 Pro Enterprise Dual w/ Visible	Mavic 2 Pro Enterprise Dual w/ Visible	29BDD19001F1WF	AST-0059669	2401025948	Nil	1100g	Nil	12 megapixel camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$4,499.00	\$791	17/04/2019	Toowoomba - 146 Herries Street	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Northern Region - Dry Tropics Management Unit	Ian Holloway	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	0AXF2F8X020106	NQJ04399	2401020752	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$1,600	\$1,600	Pre DES Actual TBC	Ian Holloway, Resource Ranger Dry Tropics, Atherton.	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	South West Region	Jason Bellert & Lindsie Pasma	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	0AXCF210B31464	AST-0059669	2401025659	Standard RGB camera	1388g	nil	20 megapixel camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,320.00	679	13/04/2019	Carnarvon Gorge Base or Roma Base	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Great Barrier Reef Marine Region, Hervey Bay	John Schwarzrock	BlueROV2	Blue Robotics			LX200V20	AST-0058866	2401025054	1080p digital	10kg	Nil	1080p digital	Micro SD Card	ArduSub and Pixhawk	QPSW Internal Induction and Type training, in accordance with operating procedure. Selected staff members internally inducted inline with SOP.	\$7,710		16/10/2018	Hervey Bay MP Office.	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Great Barrier Reef Marine Region, Hervey Bay	John Schwarzrock	Quad-copter	DJI	Phantom 4	Phantom 4	48163285	NA	NA	1/2.3" CMOS Effective pixels:12.4 M	1400g	Nil	1/2.3" CMOS Effective pixels:12.4 M	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted	\$1,700	\$1,700	14/12/2016	Hervey Bay MP Office.	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Southern Wildlife	Joshua Morris	Quad-copter	DJI	DJI	Phantom 4 Pro V2.0	NIA37800		2401004471	Nil	8175 grams (1.375kg)	Nil	20 megapixel camera	Micro SD Card	DJI GO 4	DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.	\$4,049.55		Jun-18	Rockhampton	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2	
QPSW and Partnerships	Northern Region Technical Support - Assets & Safety	Keith Eales	Quad-copter	DJI	M1P	Mavic M1P	08QDE4101203LU	N/A as this drone is Under the low value asset threshold	N/A as this drone is under the low value asset threshold	as standard out of box-camera is attached	743g	Nil	as standard out of box-camera is attached	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$1,700	\$1,700	Pre DES Actual TBC	Cairns	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Great Barrier Reef & Marine Parks Region (Far North GBR)	Kerry-Anne Hurren	Quad-copter	DJI	Mavic 2 Pro	Mavic 2 Pro	163QD9HROA1QW5	AST-0061054	2401027844	Rhymite kit 64GB Extreme SD	907g	Nil	Standard camera	Micro SD 64GB	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted. Training under SOP and in addition 5 hours supervised flight time	\$2,499	\$3,198	Nov-19	Cairns	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Great Barrier Reef & Marine Parks Region (Far North GBR)	Kerry-Anne Hurren	Quad-copter	DJI	DJI	Matrice 200	095XE74002011L	NQJ04364	2401024228	Olympus Standard Zoom lens, Olympus Portrait lens	4530g	1.61kg	Standard camera	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted. Training under SOP and in addition 5 hours supervised flight time	\$6,310	\$11,311	May-18	Tingira Street, Cairns	As per Operations Manual and Operations Procedures Library		
QPSW and Partnerships	Coastal and Islands Region	Kieran Hoey	Quad-copter	DJI	Phantom 4	WM330A	07DE170C10066	NA	NA	1/2.3" Effective Pixels: 12M	1380g	Nil	1/2.3" Effective Pixels: 12M	Micro SD Card	DJI GO 4	QPSW Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted inline with CASA and SOP.	\$	1,754.55	NA	May-17	Rainbow Beach	As per Operations Manual and Operations Procedures Library	

Division	Unit	Responsible Officer	Description of Drone	Manufacturer	Make	Model	Serial No.	Barcode No.	Asset No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (Type and cost)	Storage Capacity	Software Requirements	Operator Requirements	Base drone cost	Cost including attachments	Acquisition Date	Location	Maintenance	Link to Image
QPWS and Partnerships	Coastal and Islands Region (Great Sandy area, Cooloola North)	Kieran Hoey	Quad-copter	DJI	Phantom 4 Pro	WM330A	07D1E170C10066	NA	Low value asset	Standard camera	1380g	Nil	12 megapixel camera	Micro SD Card	DJI GO	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.				Rainbow Beach	As per manufactures recommendations	
QPWS and Partnerships	Central Region (Airrie Beach, Conway Management Unit)	Nim Finlay	Quad-copter	DJI	DJI	Phantom 4 Pro Obsidian	189CEAUBA20372	A5T-0060417	2401027238	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	CASA ARN	\$2,099	\$2,904	16/09/2019	Airrie Beach	As per manufactures recommendations	
QPWS and Partnerships	Northern Region - Ingham Mgmt Unit	Luke Rosenberger	Quad-copter	DJI	WM330A	Phantom 4 WM330A	07D1CVC0C11447	N/A	Not issued	Camera is standard as purchased.	1388g	Nil	Camera is standard as purchased.	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,000	\$2,000	Pre DES Actual TBC	Ingham	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Park Services - Assets/Spatial	Marcus Toyne	Quad-copter	DJI	DJI P4 Pro Plus Drone	Phantom 4 Pro Plus	0AXDE2UA030590	N/A less than \$2000 not required to be registered as an asset on SAP	N/A	Stock Gimbal/Camera Remote control with built in display Remote control for tablet	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	CASA ARN	1899	2599	Pre DES 28/9/2017	400 George	As per manufactures recommendations	
QPWS and Partnerships	Northern Region - Mossman Mgmt Unit	Mark Haines	Quad-copter	DJI	DJI P4 Pro Plus Drone	Phantom 4 Pro Plus	0AXDE180A30183	NQA04222	2401019943	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,599	\$2,599	Pre DES Actual TBC	Mossman	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Mossman Mgmt Unit	Mark Haines	Quad-copter	DJI	DJI Mavic Pro	DJI Mavic Pro	08QUC32001011M	N/A less than \$2000 not required to be registered as an asset on SAP	N/A	Stock Gimbal/Camera	743g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$1,598	\$1,598	Pre DES Actual TBC	Mossman MU.	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Great Barrier Reef & Marine Parks Region (NTC)	Patrick Centurino	Quad-copter	DJI	DJI	Mavic 2 Pro LIP	001D2LF163D9P9	A5T-0060421	2401027198	Standard camera. Spare batteries. With iPad mini and iPad holder	743g	Nil	Nil	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	2500	\$3,500	May-19	Magnetic Island Base	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Fitzroy Management Unit, Byfield)	Paul Harris	Quad-copter	DJI	DJI Phantom 4	Phantom 4 (WM330A)	07D0DBS0810242	A5T-0060419	2401027255	4K, 12.4 megapixel, 1/2.3" CMOS sensor	1400g	Nil	4K, 12.4 megapixel, 1/2.3" CMOS sensor	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$1,600	\$1,600	Pre DES Actual TBC	Byfield	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Great Barrier Reef Marine Region, Moreton Bay	Richard Orchard	Quad-copter	DJI	Phantom 4	Phantom 4	48163062	NA	NA	1/2.3" CMOS Effective pixels: 12.4 M	1400g	Nil	1/2.3" CMOS Effective pixels: 12.4 M	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted inline with CASA and SOP.	\$1,700	\$1,700	14/12/2016	Mainly QPWS office	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Northern Region - Cooktown Mgmt Unit	Robert Kloetzer	Quad-copter	DJI	DJI P4 Pro Plus Drone	Phantom 4 Pro Plus	0AXDE1A0A31441	NQA04220	2401019945	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,599	\$2,599	Pre DES Actual TBC	Cooktown	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Sam Richards	Quad-copter	DJI	DJI Phantom 4	Phantom 4 WM335	2018CMIT ID 2018AP1090	A5T-0060418	2401027251	Standard camera	1400g	Nil	4K, 12.4 megapixel, 1/2.3" CMOS sensor	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,800	\$2,800	Mar-19	Rockhampton QPWS C Wing	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Central Region (Fitzroy Management Unit, Rockhampton)	Scott Brook	Quad-copter	DJI	Spark (MM1A)	Spark (MM1A)	0ASDE7Q1C1000D1	A5T-0060420	2401027257	2-axis gimbal, 12 megapixel	300g	Nil	2-axis gimbal, 12 megapixel	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	Approx \$900	Approx \$901	Apr-17	Rockhampton QPWS C Wing	As per Operations Manual and Operations Procedures Library	
QPWS and Partnerships	Great Barrier Reef & Marine Parks Region (Dh GBR)	Steve Burke	Quad-copter	DJI	Phantom 4	Phantom 4 Pro Plus	189CF2TBA20606	A5T-0059727	2401025181	Standard camera	1380g	Nil	Nil	Micro SD 64GB	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted inline with CASA and SOP.	\$2599.00 ex GST		Dec-18	Roslyn Bay Marine Base	As per Operations Manual and Operations Procedures Library	dji.com/au/phantom-4
QPWS and Partnerships	Ecological Assessments unit	Team Leader (currently Andrew McDougall acting until 1 November 2019. Position recruited shortly.	Quad-copter	DJI	Phantom 4 Advanced	Phantom 4 Advanced	TBC	N/A	N/A as this drone is under the low value asset threshold	Standard camera	1368g	Nil	Standard camera	Micro SD Card	DJI GO 4	QPWS Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally inducted.	\$2,000	\$2,000	Pre DES Actual TBC	8 Wing Rockhampton.	As per Operations Manual and Operations Procedures Library	

Name	Division	Unit	Location	RePL (Yes / No)	AROC (Yes / No)	ARN, RePL and AROC numbers	Details of Training
Marcus Toyne	QPWS & Partnerships	Park Services, Asset Services	400 George St			ARN: 1035506	CASA induction sub 2kg
Ian Holloway	QPWS & Partnerships	Northern Parks and Forests	Atherton				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Andrew Dunstan	QPWS & Partnerships	GBRR, Far North	Brisbane	Yes?			Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Doug McCallum	Environmental Services and Regulation	Minerals and North QLD Compliance	Cairns	Yes	Yes	ARN: 1058643 RePL: 1058643 AROC: 1058643	RePL 0-7kg, AROC
Andy Baker	QPWS & Partnerships	Northern Parks and Forests	Cairns				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Keith Eales	QPWS & Partnerships	Northern Parks and Forests	Cairns				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Colin Dollery	QPWS & Partnerships	Northern Parks and Forests	Cairns				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Jonathan Roth	QPWS & Partnerships	Northern Parks and Forests	Cairns				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Andrew Bates	QPWS & Partnerships	Northern Parks and Forests	Cairns	Yes	Yes	ARN: 1030884 RePL: 1030884 AROC: 1030884	RePL No. 1030884 sub 25 kgs (restricted up to 7 kgs only) multi rotor, AROC No. 1030884.
Steven Bradshaw	QPWS & Partnerships	GBRR, Far North	Cairns	Yes	Yes	ARN: 1063967	Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Kerry-Anne Hurren	QPWS & Partnerships	GBRR, Far North	Cairns	Yes	Yes	ARN: 1063977	Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Tayce Cook	QPWS & Partnerships	GBRR, Far North	Cairns	Yes	Yes	ARN: 1063246	Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Callum Teale-Browne	QPWS & Partnerships	GBRR, Far North	Cairns	Yes	Yes	ARN: 1066356	Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Damon Shearer	QPWS & Partnerships	GBR&MPR, Sthn GBR	Gladstone				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Felicity Chapman	QPWS & Partnerships	GBR&MPR, Sthn GBR	Gladstone				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Rider Graham-Emmerson	QPWS & Partnerships	GBR&MPR, Sthn GBR	Gladstone				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Oliver Lanyon	QPWS & Partnerships	GBR&MPR, Sthn GBR	Rossllyn Bay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Steve Burke	QPWS & Partnerships	GBR&MPR, Sthn GBR	Rossllyn Bay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Matt Brien	QPWS & Partnerships	Northern Wildlife Operations	Cairns			ARN: 1035838	Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Corinna Browne	QPWS & Partnerships	Northern Wildlife Operations	Cairns	Yes	Yes	ARN: 1048335 RePL: AROC:	RePL 0-7kg, AROC
Dan Guymer (ARN 1048186)	QPWS & Partnerships	Northern Wildlife Operations	Cairns				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Simon Booth (ARN 1054312)	QPWS & Partnerships	Northern Wildlife Operations	Cairns	Yes	Yes		RePL 0-7kg, AROC
Brad White	QPWS & Partnerships	Northern Parks and Forests	Cardwell	Yes	Yes		RePL 0-7kg, AROC
Lindie Pasma	QPWS & Partnerships	South West Region, Southern Parks and Forests	Carnarvon Gorge	Yes	Yes		RePL/AROC 2KG-25KG
Garrett Smits	QPWS & Partnerships	South West Region, Southern Parks and Forests	Carnarvon Gorge Base	Yes	Yes		RePL/AROC 2KG-25KG
Robert Klotzler	QPWS & Partnerships	Northern Parks and Forests	Coen	Yes	Yes		RePL 0-7kg, AROC
Pete McKenzie	QPWS & Partnerships	Northern Parks and Forests	Cooktown				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Jason Barnetson	Science and Technology	Grazing Land Systems / Land Surface Sciences	EcoSciences Precinct	Yes	Yes		RePL, sub 25kg, AROC
Grant Fraser	Science and Technology	Grazing Land Systems / Land Surface Sciences	EcoSciences Precinct	Yes	Yes		RePL, sub 25kg, AROC
Chris Job	QPWS & Partnerships	South West Region, Southern Parks and Forests	Gatton	Yes	Yes		RePL/AROC 2KG-25KG
Brett Glosko	Environmental Services and Regulation	Waste and Recovery	Gold Coast	Yes	Yes	ARN: 1057139 RePL: 1057139 AROC: 1057139	RePL 0 - 7kg, 7 - 25 kg, AROC, Chief Remote Pilot
John Schwarzkopf ARN 1050012	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Hervey Bay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Christopher Mooney ARN 1051057	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Hervey Bay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Sam Miles ARN 1050092	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Hervey Bay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Troy Broome ARN 1068788	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Hervey Bay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Chris Roach Chris Osborn (ARN 1048362)	QPWS & Partnerships	Northern Parks and Forests	Magnetic Island	Yes	Yes		Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
John Rice	Environmental Services and Regulation	Energy, Extractive and South West QLD Compliance	Ipovich	Yes	Yes	ARN: 1058635 RePL: 1058635 AROC: 1058635	RePL 0-7kg, AROC
Jane Burns (ARN 1048550)	QPWS & Partnerships	Northern Wildlife Operations	Mackay				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Patrick Centurino	QPWS & Partnerships	GBRR, Far North	Magnetic Island	Yes?			Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Nathan Winn	QPWS & Partnerships	GBRR, Far North	Magnetic Island	Yes?			Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Tom Ralph	QPWS & Partnerships	GBRR, Far North	Magnetic Island	Yes		ARN: 1062475 RePL: 1062475	Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained. RePL holder
Richard Orchard ARN 1045971	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Manly				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Mike Carr ARN 1046312	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Manly				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Andrew Lowe ARN 1046070	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Manly				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Rohan Couch ARN 1046179	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Manly				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Gail Lovell ARN 1046271	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Manly				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Steve Hrocek ARN 1030344	QPWS & Partnerships	Southern Marine Parks, GBRMPR	Manly				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Mark Haines	QPWS & Partnerships	Northern Parks and Forests	Mossman	Yes	Yes		RePL 0-7kg, AROC
Brendan Malone	QPWS & Partnerships	Northern Parks and Forests	Mossman	Yes	Yes		RePL 0-7kg, AROC
Leeanne Lodder	Environmental Services and Regulation	Coal and Central QLD Compliance	Rockhampton	Yes	Yes	ARN: 1039786 RePL: 1039786 AROC: 1039786	RePL 0-7kg, AROC
Jason Bellert	QPWS & Partnerships	South West Region, Southern Parks and Forests	Roma	Yes	Yes		RePL/AROC 2KG-25KG
Camille Oliver	Environmental Services and Regulation	Investigations, Development and South East QLD Compliance	Sunshine Coast	Yes	Yes+FS	ARN: 1058772 RePL: 1058772 AROC: 1058772	RePL 0-7kg, AROC
Greg Carter	QPWS & Partnerships	South West Region, Southern Parks and Forests	Toowoomba	Yes	Yes		RePL/AROC
Andrew Chisholm	QPWS & Partnerships	South West Region, Southern Parks and Forests	Toowoomba	Yes	Yes		RePL/AROC 2KG-25KG
Adrian Gurra Paul Beer (ARN 103783)	QPWS & Partnerships	South West Region, Southern Parks and Forests	Townsville	Yes	Yes		Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements while in Northern Wildlife Operations.
Brad Pinchbeck (ARN 1048495)	QPWS & Partnerships	Northern Wildlife Operations	Townsville				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
Ren Bone (ARN 1048130)	QPWS & Partnerships	Northern Wildlife Operations	Townsville	Yes	Yes		RePL 0-7kg, AROC
David Lee	QPWS & Partnerships	CIR - Great Sandy	Rainbow Beach				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements.
Dennis Osborn	QPWS & Partnerships	CIR - Great Sandy	Rainbow Beach				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements.
Laurence Wohlsten	QPWS & Partnerships	CIR - Great Sandy	Rainbow Beach				Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements.

Abbreviation	Definition
ARN	Aviation Reference Number
AROC	Aeronautical Radio Operator Certificate
GCP	Ground Control Point
PPK	Post Processed Kinematics
ReOC	Remotely Piloted Aircraft Operators Certificate
RePL	Remote Pilots Licence
RTK	Real Time Kinematic
VLOS	Visual Line of Sight

Published on DES Disclosure Log
RTI Act 2009

Date : 17/12/2018 2:43:24 PM
From : "MURRELL Claire"
To : "JEFFERIS Celia"
Subject : Drone Requisition
Attachment : Drone Requisition.pdf;
Hey Celia

Attached for you ☺

Published on DES Disclosure Log
RTI Act 2009

Agency*	Company code*	Requisition reference number	Plant	Storage location	Purchasing Group
DES	2401	GBRR181936	2401	HBBBBBBB	Please Specify

Award contract reporting*	Offer type*	Quote/ITO/SOA reference number*
Limited offer process	Quotations	

Section 1: Vendor information

Vendor name	
GARRICKS CAMERA HOUSE	
Vendor number*	Telephone number
6150536	49211479
ABN/ACN	
1 3 6 0 4 2 1 5 6 5 2	
Email address	Contact name
rockhampton@camerahouse.com.au	p4(6) Personal inform
Address	
Shop 224/225 Stockland 176-331 Yaamba Road, North Rockhampton Q	
Postcode	
	4 7 0 1

Section 2: Requisition officer

Name	
STEVE BURKE	
Business unit	Telephone number
DES / QPWS / GBRMPR / CCMU	49915162
Email address	
steve.burke@des.qld.gov.au	
Additional contact person	
celia.jeffers@des.qld.gov.au	

Section 3: Instructions

Purchase order (supplier's copy)	Purchase order (receiver's copy)	☐ Multiple invoices expected (This creates a service order PO)	Payment terms (if required)
Send to vendor/supplier	Send to both requisition and procurement		
Discount incentive	Delivery date*	Delivery address*	Postcode*
	24/12/2018	1st Floor - John Howes Drive Yeppoon QLD	4 7 0 3

Additional instructions

Please complete Section 6: Order details on page 2.

Section 4: Automated totals (automatically populated from Section 6)

Total value (excluding GST)	Total GST	Total amount (including GST)
\$2,544.55	\$254.46	\$2,799.01

Section 5: Certifications

Procurement officer: I certify this requisition and endorse that it complies with the requirements of the Queensland Procurement Policy, and the agency's procurement policy and associated procedures.

Name	Procurement authorisation level
CLAIRE MURRELL	2
Telephone number	Signature
4047 9616	sch4p4(6) Personal information
Date	
17.12.18	

Financial approval: I certify that the GL account codes, cost collector codes, tax codes and all other information are correct. I approve this expenditure in accordance with my delegated Financial Authority.

Name	Position
DAVE ORGILL	PRINCIPAL RANGER, SGBR
DAL/level (if applicable)	Signature
Date	

Email completed form and supporting documentation to: operationalprocurement@dsiti.qld.gov.au

Privacy statement: The information being collected in this form is for the purpose of managing the financial accountability relevant to Queensland Government and is authorised under the Financial Accountability Act 2009. Your personal information may be disclosed within the Queensland Government, contracted service providers or financial institutions only as is necessary for the performance of the financial functions performed by these bodies. Your personal details will not be disclosed to any other third party or used for any other purpose without your consent, unless authorised or required to do so by law.

Section 6: Order details

Line	Item description	Quantity	Unit of issue	Unit rate (excluding GST)	Tax code	GST %	Value (excluding GST)	GST amount	Price (including GST)	Account assign	GL account/ asset code	Cost collector	Cost type
1	DJI Phantom 4 Pro+ V2.0 - Quadcopter	1	EA	\$2,544.55	PG	10%	\$2,544.55	\$254.46	\$2,799.01	Asset	NQAO252 2	1002622	Cost centre
Packing/handling charges								\$0.00	\$0.00				
Total							\$2,544.55	\$254.46	\$2,799.01				

Please complete Section 5: Certifications on page 1.

Date : 3/07/2018 2:09:55 PM
From : "SHEARER Damon"
To : "HEMSON Graham" , "MCDOUGALL Andrew (Rockhampton)"
Subject : Drone flight Swains
Attachment : image001.png;image003.png;

Hi guys,

Now I'm a self-declared drone top gun was thinking of capturing the Swains on the July trip for the purpose of vegetation mapping/birds. Andrew has good tracks of the islands we could use to program the flight plans.

If you think it's a good idea and okay to borrow your drone Graham, We can plan accordingly.

Cheers,



Damon Shearer
Senior Technical Officer
Great Barrier Reef and Marine Parks Region | Capricorn Coast Management Unit
Department of Environment and Science

P 07 4971 6519
20-22 Herbert Street Gladstone
PO Box 5065 Gladstone 4680

Date : 5/11/2019 9:21:18 AM

From : "ORGILL Dave"

To : "LANYON Oliver"

Cc : "JEFFERIS Celia"

Subject : FW: FOR ACTION - Management of Drones - Due to Corro ADG by 10am 11 Nov 2019

Attachment : image001.png;image005.jpg;image007.jpg;image002.png;image004.jpg;image010.png;image011.png;
Oliver,

I have had a go at this spreadsheet but there is to much I do not have the answers for.

The sheets which need attention are the additional details for each drone, your MU 2 are listed and details of Damon and Steve's quals to fly and if we have any other staff inducted to fly.

Regards

Dave



Dave Orgill

Principal Ranger, Southern Great Barrier Reef
QPWS and Partnerships | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4971 6515 | F 07 3014 0182 | VoIP 225 01 931
Level 2 | 20-22 Herbert Street | Gladstone
PO Box 5065 | Gladstone QLD 4680
Email: dave.orgill@des.qld.gov.au
Visit us online at www.des.qld.gov.au



I acknowledge that Aboriginal Peoples and Torres Strait Islander Peoples are the Traditional Owners of this country and they retain their relationship and connection to the land, sea and community.

I pay my respects to all Traditional Owners, and to the Elders past, present and the future for land and sea on which I work, live and walk.



From: Corro QPWS gbrmci GBR MPR <QPWSgbrmciGBRMPR.Corro@des.qld.gov.au>

Sent: Tuesday, 5 November 2019 8:28 AM

To: ALDERSON Tina; BADDILEY Craig; HEMSON Graham; HESS Lee; HOSECK Steve; Jackie Chappell; ORGILL Dave; DUNSTAN Andrew

Cc: Corro QPWS gbrmci GBR MPR

Subject: FW: FOR ACTION - Management of Drones - Due to Corro ADG by 10am 11 Nov 2019

Hi,

Please follow the link in Jo's email below to ensure that all information relating to your drones is up to date. Please advise when completed, due 10am 11th November.

Stacey



Stacey Macdonald

Administration Officer
Great Barrier Reef & Marine Parks Region | QPWS & Partnerships
Department of Environment and Science

P 07 4722 5244 | VoIP 20244
Level 10 | 445 Flinders St Townsville 4810
PO Box 5597 Townsville 4810
E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

From: Corro DES QPWS GBRMCI <DESQPWSGBRMCI.Corro@des.qld.gov.au>

Sent: Monday, 4 November 2019 12:00 PM

To: Corro DES QPWS GBRMCI; Corro QPWS gbrmci CIR; Corro QPWS gbrmci GBR MPR

Subject: FW: FOR ACTION - Management of Drones - Due to Corro ADG by cob 11 Nov 2019

Hi teams

ACTION: Please provide/update information in all worksheets (use of drones in des, definitions, drones register, drone operator) in the DES drone register located [here](#). Provide nil response or email confirmation to Corro GBRMCI when the task is completed
DUE DATE: To Corro GBRMCI by 12 noon Monday 11 November 2019

Please note – This request relates to ALL drones, not just those used in Marine Parks.

Cheers

Jo

Jo Gruer

Principal Advisor – GBR, Marine Parks, Coastal and Islands
Management and Operations | QPWS & Partnerships
Department of Environment and Science, P 07 3199 7521

From: ABURN Mark <Mark.Aburn@des.qld.gov.au>

Sent: Friday, 1 November 2019 10:07 AM

To: Corro DES QPWS Park Services; Corro DES QPWS GBRMCI; Corro DES QPWS Southern; Corro DES QPWS Northern; Corro DES QPWS WTS

Cc: Corro DES QPWS ADG

Subject: FOR ACTION - Management of Drones - Due to Corro ADG by cob 11 Nov 2019

Hi all,

The request below was originally sent out when the recent bushfire situation was ramping up, so obviously we could only devote a certain amount of attention to this request.

Could I please ask that your teams re-visit the spreadsheet and update any missing data (particularly barcode and asset numbers), including entering in the data of any new drones that have been purchased since September 2019.

Updates should be done via the link below.

Management of drones

ACTION: Further to the email requests below, could you please submit your response ensuring the appropriate information is entered into **all of the tabs** in the SharePoint document. [Please see link here to a departmental register of Drones, pilots and Divisional uses.](#)

Please note – This request relates to ALL drones, not just those used in Marine Parks.

Please have your ED approvals to Corro ADG by cob Monday 11th of November 2019.

Kind regards,



Mark Aburn
Principal Advisor
Office of the Assistant Director-General
Management and Operations | QPWS & Partnerships
Department of Environment and Science

P 07 3199 7526
Level 5, 400 George Street Brisbane QLD 4000
PO Box 15187 CITY EAST QLD 4000

Date : 13/12/2019 8:53:31 AM

From : "BURKE Steve"

To : "JEFFERIS Celia"

Subject : FW: iPad Mini - Drone Tablet

Attachment : Drone Use - Standard Operating Procedure for Raine Island ;DRAFT Drone SOP.DOCX;RPA FLIGHT LOGBOOK.DOCX;Draft risk assessment for

RPA.DOCX;image001.png;image010.jpg;image012.jpg;image003.png;image004.jpg;image005.png;image006.png;image013.png;image016.png;image017.jpg;

Drone info



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR

Queensland Parks and Wildlife Service | GBR & Marine Parks

Department of Environment & Science

(07) 49915162 | Personal info | steve.burke@des.qld.gov.au

1s | Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

From: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>

Sent: Friday, 29 March 2019 9:16 AM

To: BURKE Steve

Subject: FW: iPad Mini - Drone Tablet



Oliver Lanyon

Senior Ranger

Capricorn Coast Management Unit

Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region

Department of Environment and Science

P 07 49915117 | Personal info
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: SHEARER Damon <Damon.Shearer@des.qld.gov.au>

Sent: Friday, 29 March 2019 9:00 AM

To: LANYON Oliver

Subject: RE: iPad Mini - Drone Tablet

Hi Ol,

Here they are.

Should also note come July 1st we will need to register our drone with CASA, and also undertake an online training to operate. Applies to all drone more than 250g. I don't think there are any fees involved.

Cheers,

Damon.

From: LANYON Oliver

Sent: Friday, 29 March 2019 8:39 AM

To: SHEARER Damon <Damon.Shearer@des.qld.gov.au>

Subject: RE: iPad Mini - Drone Tablet

Nice,

Can you please send me those SOPS

Cheers



Oliver Lanyon

Senior Ranger

Capricorn Coast Management Unit

Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region

Department of Environment and Science

P 07 49915117 | Personal info
Level 1 | John Howes Drive Rosslyn Bay 4703
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E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: SHEARER Damon <Damon.Shearer@des.qld.gov.au>

Sent: Thursday, 28 March 2019 12:43 PM

File F

Page 32 of 462

To: LANYON Oliver
Cc: ORGILL Dave
Subject: RE: iPad Mini - Drone Tablet

Hi Oliver,

Benefits are in Green

Application:

Here is the brief report I wrote on our work with the drone on Curtis with Mike Hart (attached). Also the link to progress report which also discusses the drone work (can put on T: if anyone wants it).

[G:\QPWS\COMMON\Wildlife Conservation\Recovery Plans Yellow Chat\Reports\Yellow Chat FINAL reports](#)

(Improved reporting, improve quantifying pig damage, save time, reduce risk of staff get stuck in field, reduce impact on vehicles, reduced impact on the habitat)

This report has been provided to FPRG, Technical services coastal bird group.
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Gabrielle VANWILLIGEN was the contact.

I believe the large image from the plain now sits on the wall in the Rocky office.

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Other uses we are implementing:

Obtain high resolution imagery of islands in the Capricorn Cays and Swains. Imagery obtained so far, North reef, Tryon island, Lady Elliot island, East Fairfax, Wreck island, One tree island, and Broomfield (checking for change, incident response). Recent assessment of impact from King Tides/Oma highlighted lack of good baseline imagery to compare impacts over time. Also some specific projects we have captured baseline imagery for are Lady Elliot Restoration project, Tryon island recovery project, North West Island fringing reef protection (indirect offset)

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Also used to obtain an accurate count of lesser crested tern chicks on the spit at Wreck Island when traditional method would have left the chick vulnerable to gull predation. We were able to deploy the drone and capture an image (count) from the seaward edge without disturbing the parents.

Future use :

Obtain imagery for SAD reporting :

- mapping extent of area damaged,
- detecting damage not found in water
- mapping debris fields (less time in field/ better compliance outcomes).

Use in Fire program/responses :

- Assessing fuel loads in hard to access terrain (safety/time).
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Methods

We have been using SOP for Raine and also the SOP from Moreton Bay that Richard Orchard developed.
We will modify these to develop an SOP for Curtis and Cap Cays.
Work with Rocky unit to develop SOP for Fire use.

At the moment the Curtis Drone data is stored on the GIS drive (through Mike Harte). We have some of the product images stored locally on our G drive.
Cap Cays imagery in stored on local drive, we are waiting for our GIS Laptop to process through drone to map. Will store products on GIS drive.
Happy to store elsewhere if advised.

Have shared images/approaches with Technical services through coastal bird group, Tech support through Pest coordinator, FPRG. Boarder DES through exhibition.

Note : our original interest in drone work was inspire by Graham Hemson and the work he was doing with the seabirds. We were trying to figure out a method for assessing damage on Curtis and modified Grahams methods to suit.

Cheers,



Damon Shearer
Senior Technical Officer
Great Barrier Reef & Marine Parks Region | QPWS & Partnerships
Department of Environment and Science

P 07 49 716 519
Level 2 | 20-22 Herbert Street
PO Box 5065 Gladstone 4680
E-mail: damon.shearer@des.qld.gov.au

From: ORGILL Dave
Sent: Wednesday, 27 March 2019 4:39 PM
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>; SHEARER Damon <Damon.Shearer@des.qld.gov.au>; BURKE Steve <Steve.Burke@des.qld.gov.au>
Subject: FW: iPad Mini - Drone Tablet

Please respond back thru Oliver with answers to the questions below from RD.

Dave

From: HEAD Damien <Damien.Head@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 4:00 PM
To: ORGILL Dave; SCHAPER Dan; HEMSON Graham
Subject: RE: iPad Mini - Drone Tablet

Keen to hear of their application. –frequency, what for, how benefited (time, money, safety and data confidence)
Keen to see the adoption of the methodology that was developed at Raine for seabirds.
Keen to know how the data is stored.
Keen to hear how they are sharing learning across region.

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To: HEAD Damien; SCHAPER Dan; HEMSON Graham
Subject: RE: iPad Mini - Drone Tablet

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One with feral animal control Steve Burke accountable officer (so region wide application) and one for Curtis Island monitoring with marine plain/yellow chat Damon Shearer accountable officer.

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To: ORGILL Dave; SCHAPER Dan; HEMSON Graham
Subject: RE: iPad Mini - Drone Tablet

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Sent: Wednesday, 27 March 2019 3:24 PM
To: HEAD Damien
Subject: FW: iPad Mini - Drone Tablet

Damien,

This application is endorsed for your approval as delegation only to your level.

Currently MU drone operators are struggling with a normal iPad in one hand and drone controller in other hand as the normal iPad will not sit in drone controller device holder, designed for smart phones and mini iPad/tablets.

Application of this drone is broader than Curtis with it being used for seabird counts across Cap Cays and Swain Reefs and now cyclone damage assessment of Cap Cays shorelines.

Regards

Dave



Dave Orgill
Principal Ranger, Southern Great Barrier Reef
QPWS and Partnerships | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

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Level 2 | 20-22 Herbert Street | Gladstone
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Dave,

I'm supportive of this purchase. Damon needs the mini for the mapping software for the Yellow Chat project, in particular.

If you are supportive, can you please forward to Damien for financial approval.

Cheers



Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit
Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region
Department of Environment and Science

P 07 49915117 | M (6) Personal info
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: CARTHEW Anthony <Anthony.Carthew@des.qld.gov.au>
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Please review the attached order form for the iPad Mini required for piloting the Drone in your area.

Thanks,
Anthony

Anthony Carthew

Information Management Officer
Department of Environment and Science
Level 10, 445 Flinders St, Townsville, QLD 4810
(07) 47225 205
Anthony.Carthew@des.qld.gov.au

Date : 13/12/2019 8:53:19 AM

From : "BURKE Steve"

To : "JEFFERIS Celia"

Subject : FW: iPad Mini - Drone Tablet

Attachment : Can drones be used to quantify pig damage on the Curtis Island marine

plain.docx;image001.png;image004.jpg;image008.jpg;image003.png;image005.jpg;image006.png;image011.png;image013.png;image015.png;image018.jpg;image019.png;

Drone info



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR

Queensland Parks and Wildlife Service | GBR & Marine Parks

Department of Environment & Science

(07) 49915162 | (6) Personal info | steve.burke@des.qld.gov.au

1st Floor | John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au



From: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>

Sent: Friday, 29 March 2019 8:37 AM

To: BURKE Steve

Subject: FW: iPad Mini - Drone Tablet

See RD's info request below. Can you please provide some details.

Cheers



Oliver Lanyon

Senior Ranger

Capricorn Coast Management Unit

Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region

Department of Environment and Science

P 07 49915117 | (M) Personal info |
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: LANYON Oliver

Sent: Friday, 29 March 2019 8:36 AM

To: ORGILL Dave

Subject: FW: iPad Mini - Drone Tablet

Dave,

As requested



Oliver Lanyon

Senior Ranger

Capricorn Coast Management Unit

Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region

Department of Environment and Science

P 07 49915117 | (M) Personal info |
Level 1 | John Howes Drive Rosslyn Bay 4703
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Great Barrier Reef & Marine Parks Region | QPWS & Partnerships
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P 07 49 716 519
Level 2 | 20-22 Herbert Street
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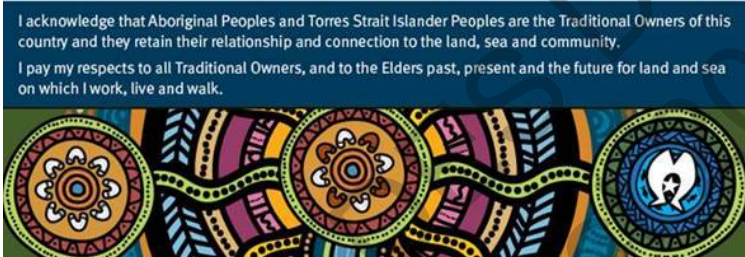
Regards

Dave



Dave Orgill
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QPWS and Partnerships | Great Barrier Reef and Marine Parks Region
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Thanks,
Anthony

Anthony Carthew
19-211

Published on DES Disclosure Log
RTI Act 2009

Can Imagery captured by a drone be used to quantify pig damage on the Curtis Island marine plain?

Executive Summary

Looks promising.

The technique needs some refinement to develop a true monitoring tool that can be utilised for the purposes of routine monitoring by operational staff.

Recommend CCMU purchase drone for pig damage assessment.

Background

Curtis Island is a large (approx 54 000 ha) island on the Queensland coast, extending from Gladstone in the south to the mouth of the Fitzroy River in the north. It is a continental island separated from the mainland by a tidal estuary known as 'The Narrows' and has a range of landforms including dunes, lowlands, hills and mountain country contiguous with the coastline.

The extensive (ca 3800ha) marine plain in the north of the island is the southern-most occurrence of a tropical marine plain community, providing unique grassland communities, and is the most prominent feature of the nationally significant wetland site known as Northeast Curtis Island (Qld017) (EA 2001). The marine plain provides a major habitat for the critically endangered yellow chat (*Ephthianura crocea*), as well habitat for migratory wader birds listed under JAMBA and CAMBA. It supports breeding populations of the yellow chat, as well as zitting cisticola (*Cisticola juncidis*), radjah shelduck (*Tadorna radjah*), brolga (*Grus rubicundus*) and seasonally, very large numbers (1000's) of magpie geese (*Anseranas semipalmata*).

The main threat to the marine plain and the species that rely on it is the disturbance caused by large numbers of feral pigs. Since 2006 QPWS has had a significant and coordinated program in place to control pig numbers through trapping, baiting and strategic shooting. Cattle grazing has also ceased on the marine plain, with buy back of the grazing lease through LNG offsets.

There has been a noticeable reduction in the damage to the plain however no attempt have been made to quantify this damage. It was initially proposed to use satellite imagery. However the expense and difficulty in obtain imagery when required has stall the monitoring. With the rapid development of drone technology and software, it is now an inexpensive way to obtain high resolution imagery relatively quickly.

Methods

Technical version.

1. Create polygons with Google Earth.

2. Upload polygons individually to DroneDeploy (using QPWS Ecological Assessment (EA) account) and build a flight plan for each polygon.
3. Download flight plans from EA DroneDeploy cloud account to DroneDeploy app on iPad and store for offline use.
4. Use DroneDeploy app on iPad to control flight of DJI Phantom 4 Advanced drone for image capture.
5. Use Drone2Map software (using QPWS Spatial Services account) to inspect the images captured during each of the drone flights.
6. Use Drone2Map to generate the following from the images collected during each flight:
 - a. A photo orthomosaic;
 - b. A digital terrain model;
 - c. A digital terrain model hillshade;
 - d. A digital surface model; and
 - e. A digital surface model hillshade.
7. While on ground use a hand held gps receiver to collect the outline of an area of interest (in this case pig damage to eleocharis reed beds) for comparison to visual and automated analysis of the orthomosaics for pig damage.
8. Use GIS software to visually inspect the orthomosaics for pig damage.
9. Use GIS software manual digitisation of pig damage in the orthomosaics.
10. Use GIS software to automate the image analysis for delineation of pig damage in the orthomosaics.

Non technical version

We used DJI a Phantom 4 Advance drone. On google earth we selected a number of reed bed on the marine plain and placed a polygon around them. These polygon were then uploaded on to web – based software called Drone Deploy. This software plans the flight for the drone, calculating how many overlapping images are needed to produce a high resolution image of the area selected. The software provide flight time, No. batteries and resolution.

Several polygon were selected and planned for the Marine Plain. The drone was deployed and images captured. To test the technique there was a focus on one particular reed where we identified recent pig damage on the ground. We conducted 2 flights at 60 and 120 m height on this reed bed to compare imagery. At this site we also mapped the damaged area using a hand held Garmin on track mode to circle the damaged area.

The captured images were loaded into a program called drone to map. This software meshes all the overlapping photos into one high resolution image. The pig damage in the high resolution image was then manual capture in polygons. This was done at 2 scales 250:1 and 500:1. An automated spectral

classification was then applied to the image. The classes were then manually reduced by elimination areas that were clearly not pig damage (training the software). Images and areas of pig damage were then compared.

Results

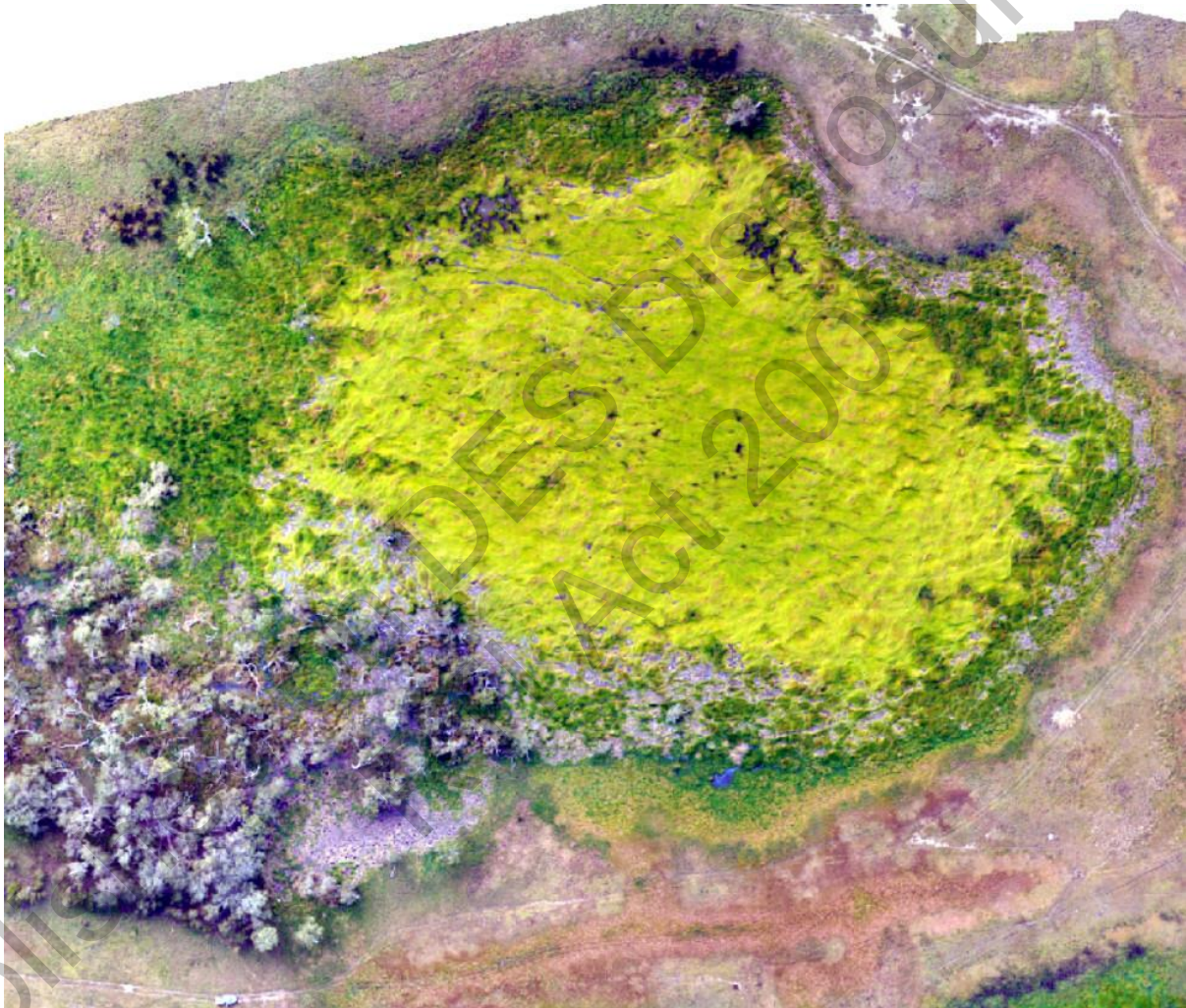


Figure 1 Orthomosaic image of pig damaged reed bed on the Curtis Island marine plain.

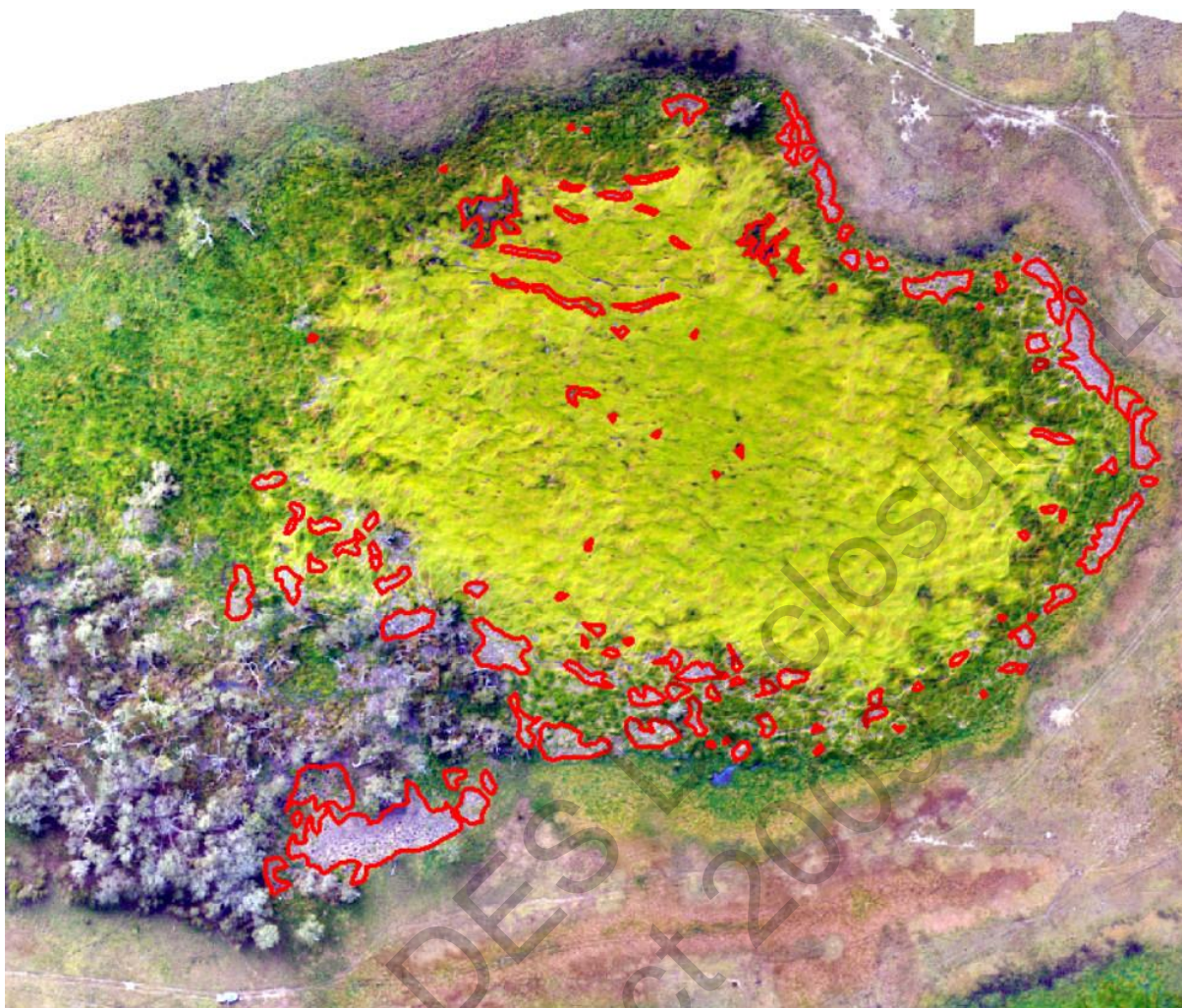


Figure 2 orthomosaic image showing manual pig damage assessment applied at 500:1

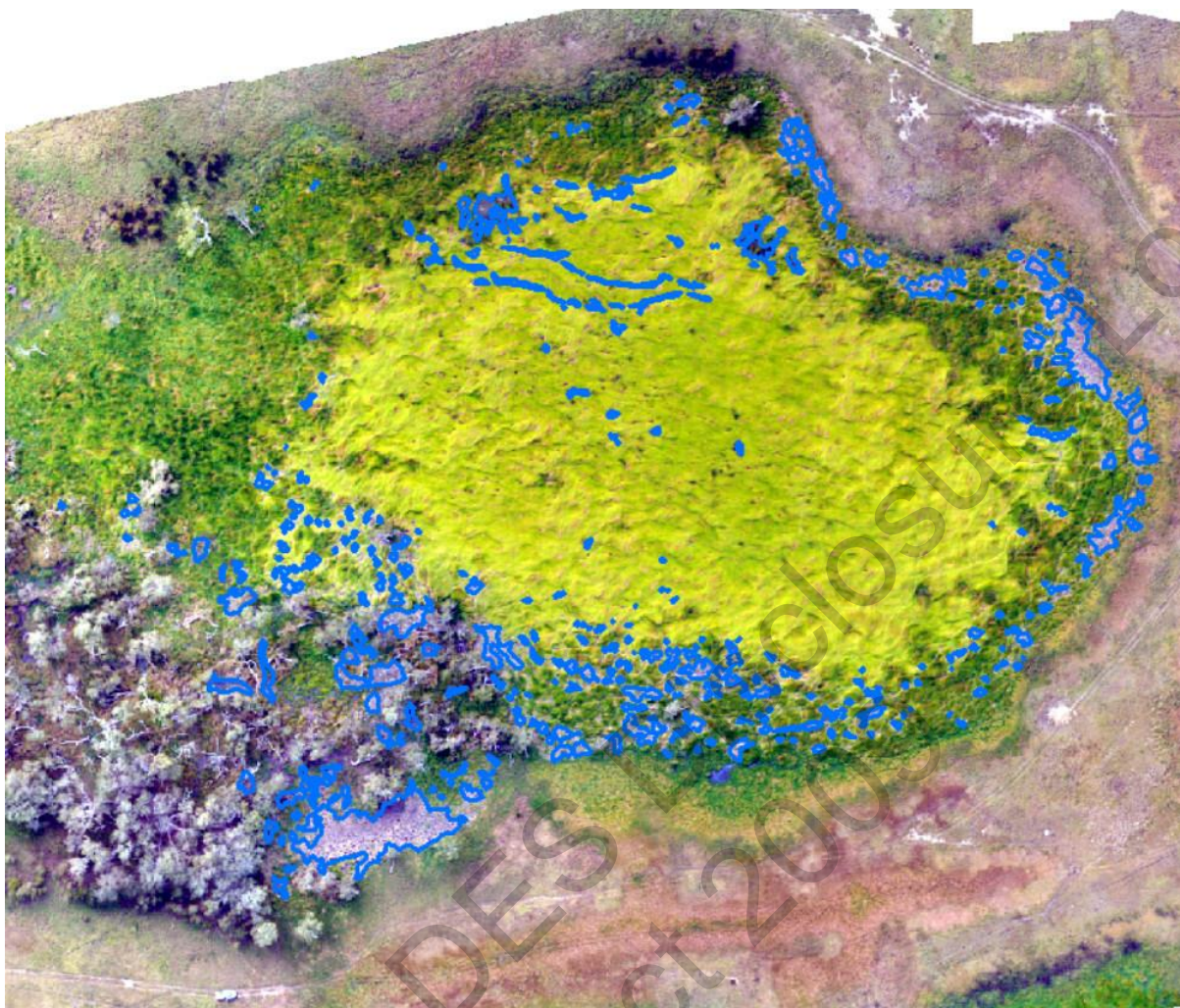


Figure 3 Orthomosaic image showing manual pig damage assessment applied at 250:1

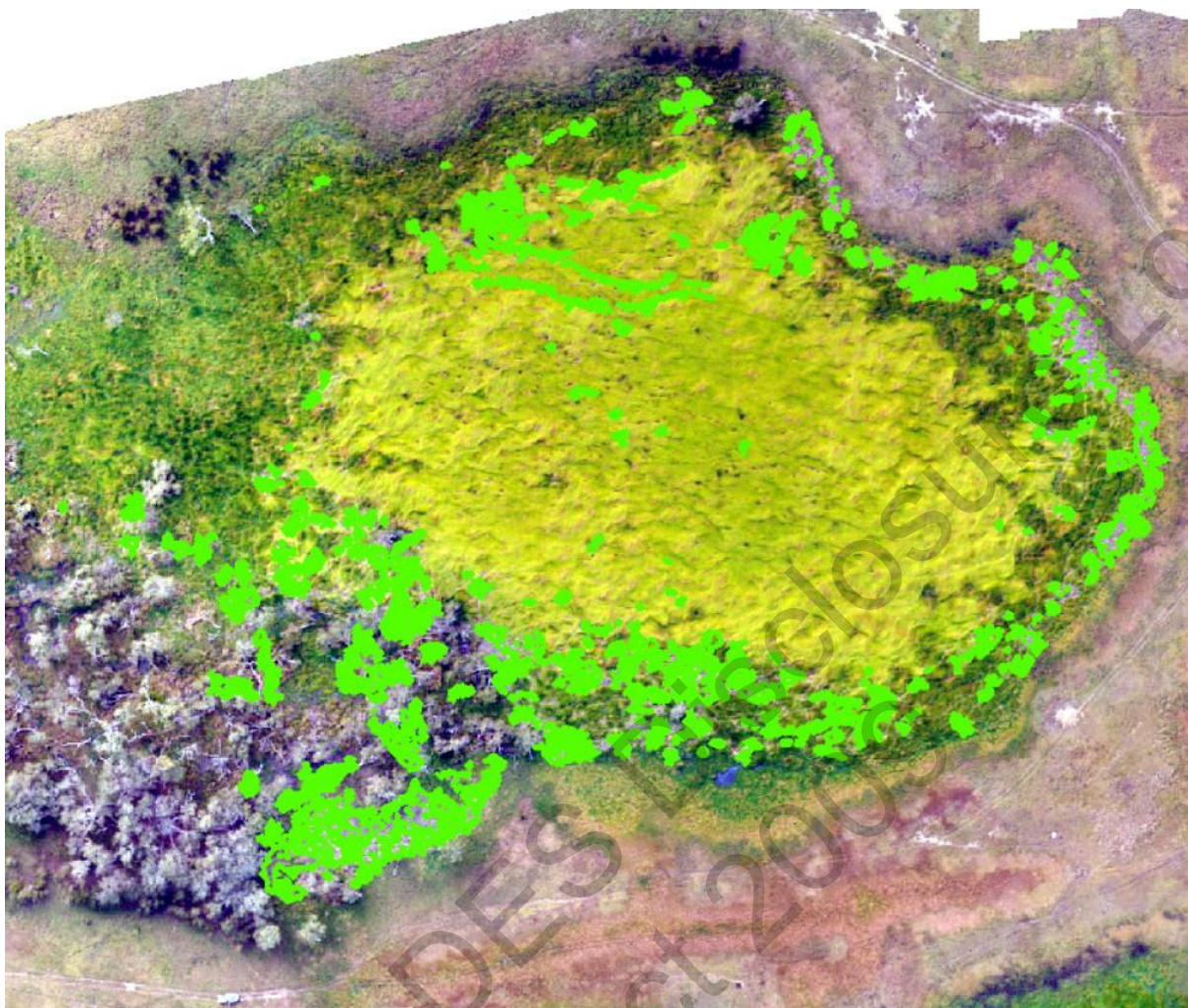


Figure 4 Orthomosaic image showing automated classification of pig damage.

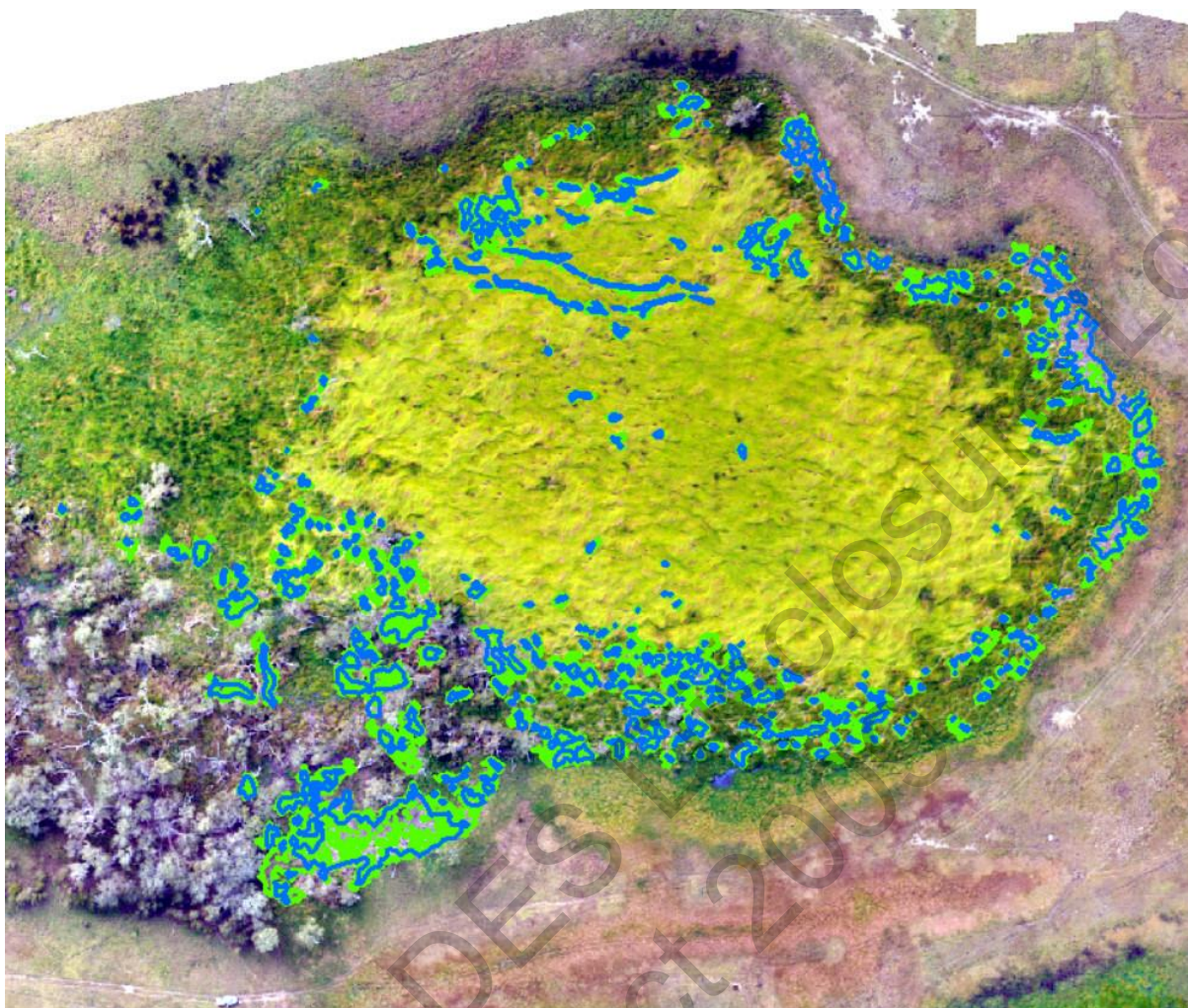


Figure 5 Orthomosaic image showing an overlay of automated classification (green) and manual assessment at 250:1 (blue)

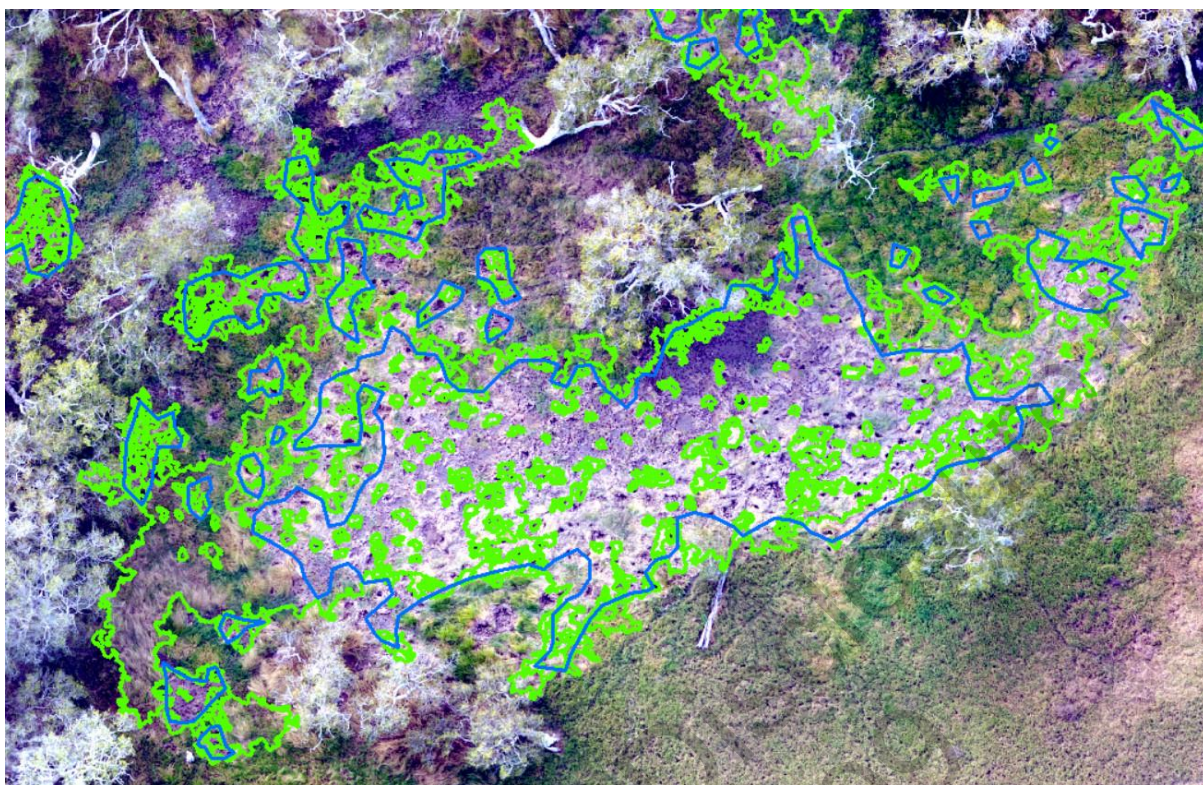
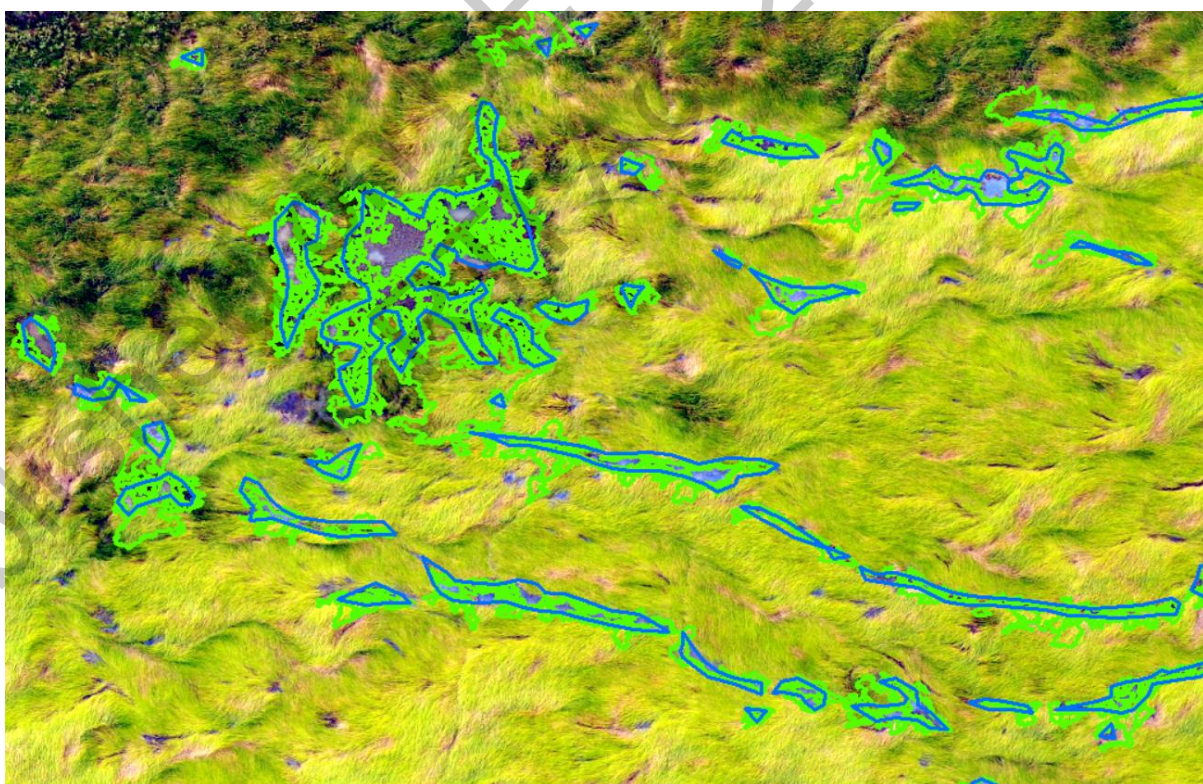
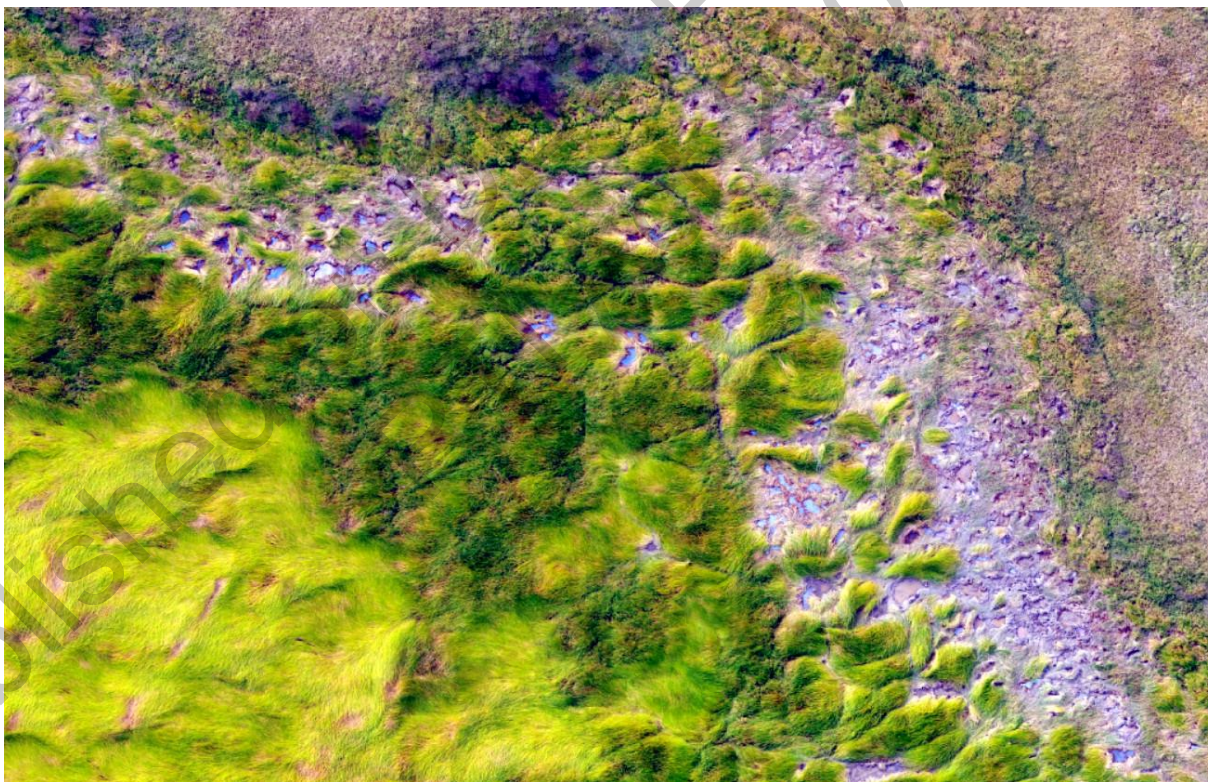
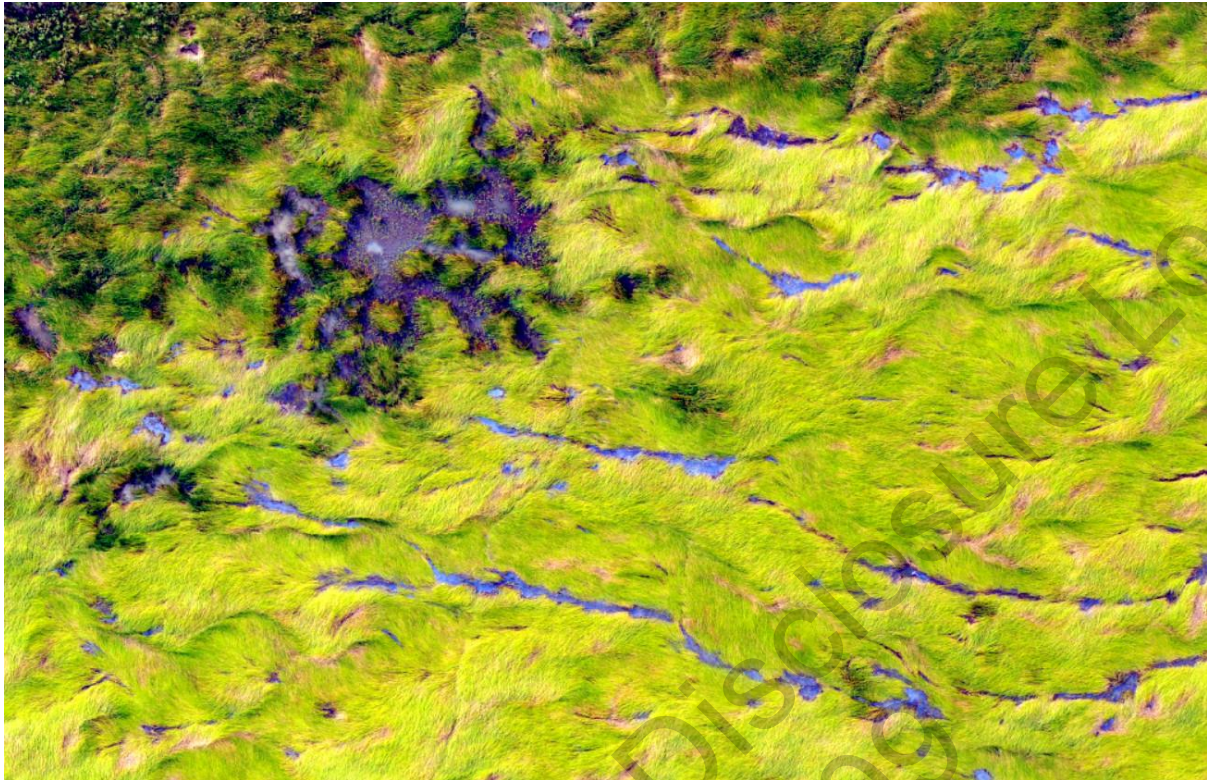


Figure 6 Orthmosaic image zoomed in showing overlay of auto classification and manual assessment at 250:1







Discussion

The ability to detect pig damage from the orthomosaic image is clearly evident in figure 1.

It is relatively a simple process to manually map the damage using GIS software to wrap polygons around the damaged areas. This gives you m² measurement of damage. Although the 250:1 does give you a more precise measurement of damage, it is more time consuming to apply. For the purposes of monitoring the degree of damage on to plain the 500:1 should be accurate enough to measure damage.

The automated classification system is an interesting tool and did appear to provide reasonably accurate results. However there maybe issues with applying it under differing spectral conditions (ie, time of day, cloud cover, dry conditions) I think for the small amount of damage we will likely encounter on the plain due to the reduced number of pigs, the manual assessment of the images is an efficient way map the damage.

Initially it was thought that a number of polygons should be flown annually covering representative areas of reed beds covering the plain. However due to limited amount of damage that is occurring this could be an inefficient method and simply unnecessary. It is likely that 90% of the image captured would not contain any pig damage, and an extensive amount of time would be wasted capturing and processing images.

A more efficient method is proposed where a number of blank polygons be programed into drone deploy for the marine plain. When pig damage is detected on the plain rangers in the field can

simply adjust the polygon over the area of damage. The flight plan will be program the drone to capture a number of images to cover the area of damage. These images can then be processed using drone to map and an orthomosaic image created. The at a 500:1 scales polygon applied over the area of damage providing a map of the damage area. The area of damage can be obtained from the software. This can be applied for a number of different areas of damage.

Published on DES Disclosure Log
RTI Act 2009

Date : 13/12/2019 8:53:37 AM

From : "BURKE Steve"

To : "JEFFERIS Celia"

Subject : FW: iPad Mini - Drone Tablet

Attachment :

image001.png;image004.jpg;image009.jpg;image003.png;image005.jpg;image006.png;image011.jpg;image012.png;image016.jpg;image017.png;

Drone info



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

(07) 49915162 | (6) Personal info | steve.burke@des.qld.gov.au

1s |  owes Drive Yeppoon QLD 4703
PO on QLD 4703

Vis: www.des.qld.gov.au

From: BURKE Steve

Sent: Friday, 29 March 2019 9:40 AM

To: LANYON Oliver

Subject: FW: iPad Mini - Drone Tablet

HI OI

In response to the below

The Rosslyn Bay drone has a built in tablet so no QPWS IT issues to deal with or tablets to share (where the drone goes it goes).

I am also in the process of preparing a pre drone flight checklist for staff so as to know you are using the drone properly and safely and while abiding by the laws dictated by CASA.

As the Rosslyn Bay drone is quite new and the weather the last month has been unsuitable / unsafe to fly drones I have only had the opportunity to use it once so far to take photos and video of vegetation previously effected by grazing animals and freshwater habitats destroyed via pig damage. If this can be done regularly enough we can start getting a data base of the changes which are occurring from removing these type of animals over time. I also managed to capture some photos of horses impacting on these sensitive areas while we were there.

Projects I am keen to see the drone used on however also include:

Aerial surveillance in conjunction with compliance patrols in Shoalwater Bay & Broadsound Islands.
Photo and video monitoring of identified sites impacted on via vertebrate pest animals like the example above.
Aerial Weed mapping and monitoring contributing to the completion of Island health checks etc
Wildfire and planned burn mapping and regeneration of native tree species and grasses.
Checking Bait stations and Traps in hard to access locations while decreasing the time it takes to check traps while also minimising wear and tear on vehicles and also reducing impacts on native vegetation
Island biosecurity incursions of weed and vertebrate pest species on many islands particularly the ones which have limited or unsafe access to them.
This can increase efficiency of staff time and resources.

The storage of data for us will be on Gladstone drive , however it would be beneficial to have this info uploaded to Qld Globe in the long term with the help of Technical support.

With the expanse of area in the region this will be a great tool for all to use and become familiar with its capabilities and uses.

Regards

Steve



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

(07) 49915162 | (6) Personal info | steve.burke@des.qld.gov.au

1s |  owes Drive Yeppoon QLD 4703
PO on QLD 4703

Vis: www.des.qld.gov.au

From: ORGILL Dave <Dave.Orgill@des.qld.gov.au>

Sent: Wednesday, 27 March 2019 4:39 PM
19-211

File F

Page 51 of 462

To: LANYON Oliver; SHEARER Damon; BURKE Steve
Subject: FW: iPad Mini - Drone Tablet

Please respond back thru Oliver with answers to the questions below from RD.

Dave

From: HEAD Damien <Damien.Head@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 4:00 PM
To: ORGILL Dave; SCHAPER Dan; HEMSON Graham
Subject: RE: iPad Mini - Drone Tablet

Keen to hear of their application. –frequency, what for, how benefited (time, money, safety and data confidence)
Keen to see the adoption of the methodology that was developed at Raine for seabirds.
Keen to know how the data is stored.
Keen to hear how they are sharing learning across region.

From: ORGILL Dave <Dave.Orgill@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 3:43 PM
To: HEAD Damien; SCHAPER Dan; HEMSON Graham
Subject: RE: iPad Mini - Drone Tablet

The Southern Area has 2.

One with feral animal control Steve Burke accountable officer (so region wide application) and one for Curtis Island monitoring with marine plain/yellow chat Damon Shearer accountable officer.

Dave

From: HEAD Damien <Damien.Head@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 3:26 PM
To: ORGILL Dave; SCHAPER Dan; HEMSON Graham
Subject: RE: iPad Mini - Drone Tablet

How many drones have we purchased across region while I was offline?

From: ORGILL Dave <Dave.Orgill@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 3:24 PM
To: HEAD Damien
Subject: FW: iPad Mini - Drone Tablet

Damien,

This application is endorsed for your approval as delegation only to your level.

Currently MU drone operators are struggling with a normal iPad in one hand and drone controller in other hand as the normal iPad will not sit in drone controller device holder, designed for smart phones and mini iPad/tablets.

Application of this drone is broader than Curtis with it being used for seabird counts across Cap Cays and Swain Reefs and now cyclone damage assessment of Cap Cays shorelines.

Regards

Dave



Dave Orgill
Principal Ranger, Southern Great Barrier Reef
QPWS and Partnerships | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4971 6515 | F 07 3014 0182 | VoIP 225 11 931
Level 2 | 20-22 Herbert Street | Gladstone
PO Box 5065 | Gladstone QLD 4680
Email: dave.orgill@des.qld.gov.au
Visit us online at www.des.qld.gov.au



I acknowledge that Aboriginal Peoples and Torres Strait Islander Peoples are the Traditional Owners of this country and they retain their relationship and connection to the land, sea and community.
I pay my respects to all Traditional Owners, and to the Elders past, present and the future for land and sea on which I work, live and walk.

From: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 2:23 PM
To: ORGILL Dave
Subject: FW: iPad Mini - Drone Tablet



Dave,

I'm supportive of this purchase. Damon needs the mini for the mapping software for the Yellow Chat project, in particular.

If you are supportive, can you please forward to Damien for financial approval.

Cheers



Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit
Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region
Department of Environment and Science

P 07 49915117 | M (6) Personal info
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: CARTHEW Anthony <Anthony.Carthew@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 2:27 PM
To: LANYON Oliver
Subject: iPad Mini - Drone Tablet

Oliver,

Please review the attached order form for the iPad Mini required for piloting the Drone in your area.

Thanks,
Anthony

Anthony Carthew

Information Management Officer
Department of Environment and Science
Level 10, 445 Flinders St, Townsville, QLD 4810
(07) 47225 205
Anthony.Carthew@des.qld.gov.au

Date : 5/11/2018 1:03:37 PM
From : "JEFFERIS Celia"
To : "CHAPMAN Felicity" , "SHEARER Damon"
Subject : FW: Phantom 4 Back Pack
Attachment : 2.png;3.png;image001.png;

From [redacted] sch4p4(6) Personal information [redacted]@riseabove.com.au]
Sent: Monday, 5 November 2018 12:52 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: Phantom 4 Back Pack

Hi Celia,

Thank you for taking over this matter on behalf of Felicity so we can have it sorted out for you.

The back pack will fit a Phantom 4 Pro V2. There is zippers both at the top of the back pack, and also a bottom compartment with zippers. If you attempt to pop the drone into the back pack from the top, it will not fit in. Therefore, you will be require to open the bottom zips and pop the drone in (legs facing up).

We will be sending your back pack out to the address you provided to me over the telephone by tomorrow.

Kind regards,



[redacted] sch4p4(6) Personal information [redacted]
Sales Administration |
Rise Above Custom Drone Solutions
P: 02 4647 3450
E: [redacted]ersona@riseabove.com.au
2/40 Dunn Rd
Smeaton Grange NSW
www.riseabove.com.au/
 

"If you have a couple of minutes, it would be appreciated if you could leave a quick review on our [Facebook](#) or [Google](#) page (or both!). If you have any questions or need any assistance in the future please do not hesitate to contact us!

Date : 25/10/2018 9:47:16 AM
From : "CHAPMAN Felicity"
To : "JEFFERIS Celia"
Subject : FW: QSS Finance FI2092966: EXPENSE REVIEW - UAV drone
Attachment : image001.png;image002.png;

Request has been saved with notification no. 000601073178



Felicity Chapman
A/Principal Ranger Southern Great Barrier Reef
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M (6) Personal infor
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Queensland Shared Services <qss@dsiti.qld.gov.au>
Sent: Thursday, 25 October 2018 9:42 AM
To: CHAPMAN Felicity
Subject: QSS Finance FI2092966: EXPENSE REVIEW - UAV drone

Hi Felicity,

Good morning.

Just following up on my email about a drone purchase for \$2,443.64 via your corporate card. The amount is within the low value asset recognition threshold and SAP registrable.

Please do not hesitate to contact me if you have any query.

Thank you.

Kind regards,

Vilano C. Cabonce
Senior Finance Officer (Accounting Services)
Queensland Shared Services
Department of Science, Information Technology and Innovation

P 07 3021 4374, (ext. 74374)
Gabba Towers, Level 10, 411 Vulture Street, Woolloongabba QLD 4102.
vilano.cabonce@dsiti.qld.gov.au
Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Record Details:

Number: FI2092966
Category: General Enquiry
Subject: EXPENSE REVIEW - UAV drone
Description: CHAPMAN Felicity SEP-18 UAV drone
Status: Awaiting Customer Response
Created: 11-10-2018 13:23:45

Date : 4/02/2019 12:10:59 PM

From : "Corro QPWS gbrmci GBR MPR"

To : "JEFFERIS Celia"

Cc : "BURKE Steve"

Subject : FW: QSS Finance FI2255839: Requisition for Goods / Services_GBRR181936_Garricks Camera House (6150536)

Attachment : 4500332205R.pdf;image001.png;image002.png;image003.png;

Hi Celia

Is this a drone / LVA asset it should have been registered in Loc8 then in SAP we have to use the AST- numbers created in Loc8. You cannot use those old barcodes anymore they are obsolete.

Queensland Shared Services

QSS 0144 v21 January 2019

Page 1 of 2

Section 6: Order details

Line	Item description	Quantity	Unit of issue	Unit rate (excluding GST)	Tax code	GST %	Value (excluding GST)	GST amount	Price (including GST)	Account assign	GL account/ asset code	Cost collector	Cost type
1	DJI Phantom 4 Pro+ V2.0 - Quadcopter	1.0	EA	\$2,362.73	PG	10%	\$2,362.73	\$236.27	\$2,599.00	Asset	NQA02522	1002622	Cost centre
				Packing/handling charges				\$0.00	\$0.00				
Total							\$2,362.73	\$236.27	\$2,599.00				

Please complete Section 5: Certifications on page 1.



Julieanne OConnell

A/Regional Support Officer

QPWS | Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4962 5202 | VoIP 35202 | E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

From: Queensland Shared Services <qss@dsiti.qld.gov.au>

Sent: Friday, 1 February 2019 2:54 PM

To: Corro QPWS gbrmci GBR MPR

Cc: JEFFERIS Celia; BURKE Steve

Subject: QSS Finance FI2255839: Requisition for Goods / Services_GBRR181936_Garricks Camera House (6150536)

good Afternoon

p/order has been sent to the vendor - GR copy attached

Kind Regards,

Gillian Irwin
Operational Procurement,
Service Delivery Officer
Transactional Business Services
Queensland Shared Services
P 1300 146 370

Record Details:

Number: FI2255839

Category: Paper Requisition

Subject: Requisition for Goods / Services_GBRR181936_Garricks Camera House (6150536)

Description: Form for Processing:

Department: Environment and Science (DES)

Company Code: 2401 - DES

Additional Information:

Please find attached Requisition for Goods / Services_GBRR181936_Garricks Camera House (6150536), for processing. Kind regards, Celia Jefferis.

Status: Awaiting Validation

Created: 31-01-2019 14:41:07

To:
GARRICKS CAMERA HOUSE
176-331 YAAMBA RD
NORTH ROCKHAMPTON QLD 4701

Deliver to:
STEVE BURKE PH: [REDACTED]
DES/QPWS/GBRMPR/CCMU
JOHN HOWES DR
YEPPPOON QLD 4703

Invoice to:
Please send Invoice to the delivery address

Terms of Payment: within 30 days Due net

REQUISITION NO: GBRR181936

PURCHASE ORDER ENQUIRIES TO: STEVE BURKE PH: [REDACTED]

INVOICES TO:
PO BOX 770
YEPPPOON QLD 4703

Item	Material	Description	Order qty.	Unit	Price/Unit	Net Value	GST	Gross Value
00010		DJI PHANTOM 4 PRO+ V2.0 QUADCOPTER						
sch4p4(7)(1)(c) Business/commercial/professional/financial affairs								
Total Including GST								\$2,599.00

Department of Environment and Science

Purchase order 4500332205

Date: 01.02.2019

Vendor No: 6150536

Purchasing Contact ES - DES

Telephone

Delivery Date 04.02.2019



Queensland
Government

ABN: 46640294485

Page 1 of 1

Fax

GOODS RECEIPT COPY

This purchase order is released subject to our standard terms and conditions. To obtain a copy, please refer to the Purchasing Contact.

19-211

File F

Page 57 of 462

Help Queensland end domestic and family violence. See how at <https://www.forgov.qld.gov.au/workplace-package-domestic-and-family-violence>.

Date : 14/12/2018 2:24:17 PM

From : "BURKE Steve"

To : "JEFFERIS Celia"

Subject : FW: QUOTATION - 417479 from Garricks Camera House

Attachment : QUOTATION - 417479 from Garricks Camera House.pdf;

Asset shell created 17/12/18 NQAO2522 Request has been saved with notification no. 000601081997

GBRR181936

Hi Celia

As discussed a quote request for a drone from Garrick Camera House is attached.

However I am waiting for written approval for purchase from Ol. I will send it through once received.

Regards
Steve

Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR Queensland Parks and Wildlife Service | GBR & Marine Parks Department of Environment & Science

- (07) 499151621 4(6) Personal information steve.burke@des.qld.gov.au

1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

-----Original Message-----

From: rockhampton@camerahouse.com.au <rockhampton@camerahouse.com.au>

Sent: Friday, 14 December 2018 2:14 PM

To: BURKE Steve

Subject: QUOTATION - 417479 from Garricks Camera House

Please find attached QUOTATION - 417479 from Garricks Camera House

This email is intended only to be read by the addressee. It is confidential and may contain legally privileged information. You may not copy or deliver this message to anyone without the explicit consent of the sender. If you are not the addressee indicated in this message (or responsible for delivery of the message to such person) you should destroy this message and kindly notify the sender by reply mail. Confidentiality and legal privileges are not waived or lost by reason of mistaken delivery to you. Emails supplied are as found and there is no guarantee that the messages have not been edited after receipt. - Camera House 2018

QUOTATION

Sold To:

Steve Burke

Qld Parks and Wildlife service

po box 770

YEPPON 4703

Quotation No	417479
Quotation Date	14-DEC-18
Valid Until	13-JAN-19
Customer No	4p4(6) Personal informa
Customer Ref/PO	
Staff Member	Sandra S

Stock Code	Item Description	Qty	Item Price	Line Total
CP.PT.00000231.01	DJI Phantom 4 Pro+ V2.0 - Quadcopter	1	2544.55	2544.55

Quotation Ex GST	\$2,544.55
GST	\$254.45
Quotation Total	\$2,799.00



Date : 31/01/2019 1:51:20 PM
From : "BURKE Steve"
To : "JEFFERIS Celia"
Cc : "LANYON Oliver"
Subject : FW: QUOTATION - 417479 from Garricks Camera House
Attachment : QUOTATION - 417479 from Garricks Camera House.pdf;
You have created FI2255839 click here to view

Celia

New quote attached, that model of drone has been discontinued, this one is basically the same but does not have as long fly time and a little cheaper.

Regards
Steve

Steve Burke
Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR Queensland Parks and Wildlife Service | GBR & Marine Parks Department of Environment & Science

- (07) 499151621 (6) Personal info steve.burke@des.qld.gov.au

1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

-----Original Message-----

From: rockhampton@camerahouse.com.au <rockhampton@camerahouse.com.au>
Sent: Thursday, 31 January 2019 1:35 PM
To: BURKE Steve
Subject: QUOTATION - 417479 from Garricks Camera House

Please find attached QUOTATION - 417479 from Garricks Camera House

This email is intended only to be read by the addressee. It is confidential and may contain legally privileged information. You may not copy or deliver this message to anyone without the explicit consent of the sender. If you are not the addressee indicated in this message (or responsible for delivery of the message to such person) you should destroy this message and kindly notify the sender by reply mail. Confidentiality and legal privileges are not waived or lost by reason of mistaken delivery to you. Emails supplied are as found and there is no guarantee that the messages have not been edited after receipt. - Camera House 2019

QUOTATION

Sold To:

Steve Burke

Qld Parks and Wildlife service

po box 770

YEPPOON 4703

Quotation No	417479
Quotation Date	31-JAN-19
Valid Until	02-MAR-19
Customer No	4p4(6) Personal informat
Customer Ref/PO	
Staff Member	Sandra S

Stock Code	Item Description	Qty	Item Price	Line Total
CP.PT.00000013.01	DJI Phantom 4 Pro+ Obsidian Drone	1	2362.73	2362.73

Quotation Ex GST	\$2,362.73
GST	\$236.27
Quotation Total	\$2,599.00



Date : 14/12/2018 10:29:40 AM
From : "JEFFERIS Celia"
To : "BURKE Steve"
Subject : FW: Rise Above Invoice and Dispatch Notification For Items On Order #N59627
Attachment : INVOICE_N59627.PDF;image001.jpg;image001.png;image003.png;

FYI

From: CHAPMAN Felicity
Sent: Thursday, 11 October 2018 2:55 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: Rise Above Invoice and Dispatch Notification For Items On Order #N59627

Request has been saved with notification no. 000601073178

Thank you Celia. This really helps me out.



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M (6) Personal inform
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Sales@riseabove.com.au <Sales@riseabove.com.au>
Sent: Wednesday, 19 September 2018 12:14 PM
To: CHAPMAN Felicity
Subject: Rise Above Invoice and Dispatch Notification For Items On Order #N59627

Dear Felicity,

Thank you for shopping with Rise Above.

Below is a list of items that have been dispatched to your nominated shipping address. A tax invoice has also been attached to this email for your records.

To track the progress of this and other orders online please go to [your account](#) and select the order you want to track.

Items That Have Been Dispatched

Image	Qty	Description	Ship Method	Consignment #
	1	DJI Phantom 4 Pro V2.0 Drone	Australia Post eParcel	LZT5003520 Online Tracking

Enter or import your rates for the zones you ship to.

1	DJI Phantom 4 Series - High Capacity Battery (Part 64)	Australia Post eParcel	LZT5003520 Online Tracking
---	--	------------------------	---

Enter or import your rates for the zones you ship to.

Please note: some items on your order may arrive separately if they are sent using different shipping methods.

Order

Tax Invoice

INVOICE #: N59627

Date Placed: 14/09/2018

Date Invoiced: 14/09/2018

Paid

Date Due: 14/09/2018

ABN: 22 168 957 499
PH: 02 4647 3450

SHIP TO:

Tel: 49 716519
Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

SOLD TO:

Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

QTY	NAME	UNIT PRICE	TAX	SUBTOTAL
1	DJI Phantom 4 Pro V2.0 Drone Serial # 11UCF720A40216			
1	DJI Phantom 4 Series - High Capacity Battery (Part 64) Serial # 0DQAF7R03200P6			

4p4(7)(1)(c) Business/commercial/professional/financial aff

ORDER PAYMENT HISTORY

DATE	PAYMENT METHOD	AMOUNT PAID
14/09/2018	Master Card	\$2,688.00
Total Amount Paid:		\$2,688.00

Direct Bank Deposit or Internet Transfer
Send To: Rise Above Aerial Cinematography
Commonwealth Bank of Australia
BSB: 062-185 Ac/No. 10731227

Please leave your order/invoice number as a payment reference. Once you have deposited the full amount, please email a copy of the payment confirmation to sales@riseabove.com.au.

Credit Card - By Phone
Master Card or Visa
Please call (02) 4647 3450 to pay by credit card.

Paypal
Send payment to sales@riseabove.com.au with your invoice number as your reference.

Please note all prices are shown in AUD

By proceeding with this order, you acknowledge that you have read and agree to the terms and conditions located on www.riseabove.com.au/terms-of-use

Rise Above Aerials - 2/40 Dunn Rd. Smeaton Grange NSW 2567

Shipping Tracking For Order #N59627

STATUS: Dispatched

Invoice # N59627
Date Placed: 14/09/2018
Date Invoiced: 14/09/2018

SHIP TO:

Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, Queensland 4680
Australia
Tel: 49 716519

Image	Qty	Description
	1	DJI Phantom 4 Pro V2.0 Drone

Shipping Details

Australia Post eParcel
Tracking #LZT5003520
[Track Online](#)

Published on DES Disclosure Log
RTI Act 2009

SHIP TO:

Tel: 49 716519
Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

SOLD TO:

Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

QTY	NAME	UNIT PRICE	TAX	SUBTOTAL
1	DJI Phantom 4 Pro V2.0 Drone Serial # 11UCF720A40216	[Redacted Table Content]		
1	DJI Phantom 4 Series - High Capacity Battery (Part 64) Serial # 0DQAF7R03200P6			

ORDER PAYMENT HISTORY

DATE	PAYMENT METHOD	AMOUNT PAID
14/09/2018	Master Card	\$2,688.00
Total Amount Paid:		\$2,688.00

Direct Bank Deposit or Internet Transfer

Send To: Rise Above Aerial Cinematography

Commonwealth Bank of Australia

BSB: 062-185 Ac/No. 10731227

Please leave your order/invoice number as a payment reference.
Once you have deposited the full amount, please email a copy of the
payment confirmation to sales@riseabove.com.au.

Credit Card - By Phone

Master Card or Visa

Please call (02) 4647 3450 to pay by credit card.

Paypal

Send payment to sales@riseabove.com.au with your invoice number
as your reference.

Date : 15/10/2018 11:11:43 AM
From : "HURREN Kerry-Anne"
To : "HALEY Gemma"
Subject : FW: Drone requirements
Attachment : image001.png;image003.png;image002.png;image006.png;
FYI



Kerry-Anne Hurren
A/Ranger in Charge (Natural Resource Management)
Great Barrier Reef & Marine Parks I QLD Parks & Wildlife Service
Department of Environment & Science

M 6) Personal info E Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

From: SOLOWIEJ Ben
Sent: Friday, 12 October 2018 3:53 PM
To: HURREN Kerry-Anne
Subject: Drone requirements

Hi KA,

As discussed, I had a yarn with CASA regarding ticketing requirements for commercial use. Commercial use is defined by CASA as “any direct or indirect gain” I gave them some examples of what we would be doing and we are classed as commercial.

- Under 2kg, no ticketing requirement, operate as per QPWS and CASA SOP and the “can I fly there” app on the I pad. Pilots will need to apply for an an ARN (aviation reference number) and log the proposed flight on the CASA website.
- Over 2kg, Remote pilot license is required and CASA also requires the operator to log the proposed flight on the CASA website **5 days prior the flight.**

Basically, to my knowledge if we use the big drone we need to be licenced whether it's our estate or not. If we use the little drone we get a handful of operators their own ARN and in house train them to our SOP we are covered.

Maybe get Tina to follow up the letter and see if it's still current....

Talk soon,



Ben Solowiej
Resource Ranger
Coastal Tropics I Cairns Management Unit
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4047 9657 M 6) Personal info
E ben.solowiej@des.qld.gov.au W www.des.qld.gov.au
100-106 Tingira Street PORTSMITH QLD 4870
PO Box 685 BUNGALOW QLD 4870



Date : 15/10/2018 11:11:35 AM

From : "HURREN Kerry-Anne"

To : "HALEY Gemma"

Subject : FW: drones - CASA

Attachment : image001.png;image002.png;image003.png;image004.png;image006.png;image005.png;image008.png;

FYI



Kerry-Anne Hurren

A/Ranger in Charge (Natural Resource Management)

Great Barrier Reef & Marine Parks I QLD Parks & Wildlife Service

Department of Environment & Science

M (6) Personal info E Kerry-Anne.Hurren@des.qld.gov.au

100 – 106 Tingira Street PORTSMITH QLD 4870

Po Box 685 BUNGALOW QLD 4870

From: ROBERTSON Katharine

Sent: Friday, 12 October 2018 3:50 PM

To: HURREN Kerry-Anne

Subject: FW: drones - CASA

Re. Email from CASA for operating drones over QPWS land

From: ALDERSON Tina

Sent: Friday, 12 October 2018 3:45 PM

To: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>

Subject: drones - CASA

Here is the attachment to the drone request when we put it in with the email from CASA

Tina

Attachment 2 - CASA email re operating drones over QPWS land

From: Scrimshaw, Kev [<mailto:Kevin.Scrimshaw@casa.gov.au>]

Sent: Wednesday, 12 October 2016 9:14 AM

To: MELZER Cate

Subject: CASR 101.237 query [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good morning Kate,

Following on from our conversation relating to CASR 101.237 and the question about the conditions for an RPA operation over QPWS land, I can advise the following: for an operation to be conducted by the QPWS in accordance with CASR 101.237:

- The RPA must be owned by the QPWS;
- The RPA must be operated by an employee of the QPWS;
- The employee must not receive any remuneration other than normal salary arising from the operation of the RPA;
- The RPA must be no greater than 25 KG;
- If the RPA is between 2 – 25 KG, then it must only be operated over land owned by the QPWS;
- The RPA must not be used for any other purpose other than the business of the QPWS;
- Any imagery obtained from the RPA must be used solely within the QPWS and must not be sold to a third party;
- If there was a segment of land within the QPWS owned land that is leased out to a third party, then the RPA is not to be operated over such land;
- The fact that the public may have access to the QPWS land does not prohibit such operations under CASR 101.237 but the above is to be complied with;
- The standard conditions are still to be complied with such as (CASR 101.238):
 - No ops within 30 metres of a person that is not directly associated with the operation;
 - No higher than 400 feet AGL by day;
 - No operation within 3 NM of the movement area of a controlled aerodrome;
 - All operations must be conducted Line of Sight only;
 - CASR 101.055 is to be complied with in that no hazard is to be caused to another aircraft, another person or property;
 - The RPA is not to be operated over a populous area. A populous area can be defined as a single person if the RPA is a multicopter due to the flight dynamics and the outcome should the multicopter fail during flight;
 - The person operating the RPA is to only operate a single RPA at a time.

As you can see, this would enable the QPWS to operate an RPA not above 25 KG over land so long as the QPWS owned such land or occupied such land. The last part would be a question for a legal determination if the public had access to the land.

This email is only provided as guidance because at the end of the day, it is for the QPWS to determine if their proposed operation would fit into the above criteria. CASA cannot make such a determination for the QPWS but can only provide guidance based on the information supplied. I trust that this meets your needs.

Regards and safe operations,

[Kev Scrimshaw](#)

Safety Specialist

Office of Airspace Regulation

Air Navigation, Airspace & Aerodromes Branch

[CASA](#) Aviation Group

p: (02) 6217 1550 or 131757 m: (6) Personal info

f: (02) 6217 1747

www.casa.gov.au

Aviation House, 16 Furzer Street, Phillip ACT 2606

GPO Box 2005, Canberra ACT 2601





Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

Queensland Parks & Wildlife Service

Department of Environment and Science

P(6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

Published on DES Disclosure Log
RTI Act 2009

Date : 8/01/2019 9:45:52 AM

From : "HALEY Gemma"

To : "HURREN Kerry-Anne"

Subject : FW: Ranger Training - Cairns - [BGZ-ZAVRG-066]

Attachment :

29dbf0edbe66d5fde58eb2614b83bab6;527c929f7ffd1066b2f20bd9cd7cb1a4;ca3e59b85595b7319ff00a10611860f1;image001.png;image003.png;

[Some more drone info](#) 😊



Gemma Haley

Project Officer

Queensland Parks and Wildlife Service

Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4047 9615

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.des.qld.gov.au

From: [ersona](#) <support@wickedcopters.com.au>

Sent: Tuesday, 8 January 2019 9:28 AM

To: HALEY Gemma

Subject: Re: Ranger Training - Cairns - [BGZ-ZAVRG-066]

Hi Gemma,

Great, thanks for that.

Just some additional info. The new link to the course product and pricing is here: <http://www.wickedcopters.com.au/repl-multi-rotor-sub7kg-or-25-TF>

The venues include Cairns, and if you need the sub 25kg pricing, just select in the options. You would probably want to include the Radio Licence (AROC) as well, giving a total cost of \$2495 for sub 25kg with AROC Radio licence in Cairns,

Regards

[Personal](#)

(07) 3715 5534

facebook.com/wickedcoptersau

[Instagram.com/wickedcopters](https://instagram.com/wickedcopters)

Brisbane, Australia

Sales | Training | Support www.wickedcopters.com.au

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https://support.wickedcopters.com.au/ticket_w1e8k7MstT0fn2C

-----Original message-----

From: HALEY Gemma <Gemma.Haley@des.qld.gov.au>

Sent: 01/08/2019 09:22:12

Hi [ersona](#)

Thanks for the info. I have passed it on to my supervisors.

Happy new year!

Cheers

Gemma



Gemma Haley

Project Officer

Queensland Parks and Wildlife Service

Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4047 9615

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.des.qld.gov.au

From: Personal <support@wickedcopters.com.au>
Sent: Wednesday, 2 January 2019 12:57 PM
To: HALEY Gemma
Subject: Re: Ranger Training - Cairns - [BGZ-ZAVRG-066]

Hi Gemma,

Apologies for the spelling error, corrected below.

Hope you had a great Xmas and New Year.

Just to let you know that we are **now able** to do sub 25kg training in Cairns on a monthly basis from this month, due to the increase in demand for us to be in Cairns.

Let us know if you are still looking for sub 25kg MR training at all.

Thanks,

Regards

Personal

(07) 3715 5534

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Instagram.com/wickedcopters
Brisbane, Australia
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https://support.wickedcopters.com.au/ticket_w1e8k7MstT0fjn2C

-----Original message-----

From: Personal <support@wickedcopters.com.au>
Sent: 01/02/2019 12:55:30

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Hi Gemma,
Hope you had a great Xmas and New Year.

Just to let you know that we are no able to do sub 25kg training in Cairns on a monthly basis from this month, due to the increase in demand for us to be in Cairns.

Let us know if you are still looking for sub 25kg MR training at all.

Thanks,

Regards

Personal

(07) 3715 5534

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-----Original message-----

From: HALEY Gemma <Gemma.Haley@des.qld.gov.au>
Sent: 09/28/2018 14:46:21

19-211

Hi Personal

Yes Thanks I did receive your email, I have been out in the field the last couple of days. I have forwarded the information on to my supervisor and will be in touch again soon.

Cheers and thanks for your help with this.

Gemma



Gemma Haley

Ranger

Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: enquiries@wickedcopters.com.au <enquiries@wickedcopters.com.au>

Sent: Thursday, 27 September 2018 7:05 PM

To: HALEY Gemma

Subject: Ranger Training - Cairns

Hi Gemma,

Did you get our email quote for your RePL sub 25kg training enquiry sent yesterday? Personal send a follow-up check from our ticket system but sometimes these emails end up in SPAM so I just thought I send you a conventional email too.

—Original message—

From: Personal <support@wickedcopters.com.au>

Sent: 09/26/2018 12:40:24

Hi Gemma

Apologies for the delay in getting back to you regarding the RePL sub 25kg training in Cairns.

The standard price for sub25kg RePL, 4 day course with AROC and ELP is \$3095.

We can give 20% off the cost for payment on order for 5 students, and if you could provide a room for the theory. This would mean a cost of \$2476 per student.

We would fit the timing in with your needs for the 5 students.

Please let me know if you need any further information or a formal quote.

Many thanks,

Regards

Personal

(07) 3715 5534

Regards

4p4(6) Personal Informa

DIRECTOR

Virtual Edge 4D Pty Ltd t/a Wicked Copters

4(6) Personal inform | +61 7 3715 5534 | 1300 970 042

Wicked Copters

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Date : 27/09/2018 7:54:56 AM
From : "HALEY Gemma"
To : "HURREN Kerry-Anne"
Subject : FW: Ranger Training - Cairns - [LMU-XPRA-135]
Attachment : image001.png;image003.png;

FYI drone training quote below



Gemma HALEY
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: Personal support@wickedcopters.com.au>
Sent: Wednesday, 26 September 2018 12:40 PM
To: HALEY Gemma
Subject: Re: Ranger Training - Cairns - [LMU-XPRA-135]

Hi Gemma

Apologies for the delay in getting back to you regarding the RePL sub 25kg training in Cairns.

The standard price for sub25kg RePL, 4 day course with AROC and ELP is \$3095.

We can give 20% off the cost for payment on order for 5 students, and if you could provide a room for the theory. This would mean a cost of \$2476 per student.

We would fit the timing in with your needs for the 5 students.

Please let me know if you need any further information or a formal quote.

Many thanks,

Regards

Personal

(07) 3715 5534

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Instagram.com/wickedcopters
Brisbane, Australia
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Date : 23/10/2018 9:34:52 AM
From : "HALEY Gemma"
To : "HURREN Kerry-Anne"
Subject : FW: Ranger Training - Cairns
Attachment : image003.png;image003.png;image001.png;image003.png;

FYI

Dates for drone training in Cairns. Not the 25kg course.

Option for a ranger to go to Bris for the 25kg course for the same price.

Cheers
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: Wicked Copters <enquiries@wickedcopters.com.au>
Sent: Thursday, 18 October 2018 2:41 PM
To: HALEY Gemma
Subject: Re: Ranger Training - Cairns

Hi Gemma,

We are looking at the week of 3rd December 2018. For a Classroom it would be Mon-Thu and online would be Wed/Thu.

Unfortunately we would only be doing the 7kg RePL course, as the 25kg requires transport by road.

The cost would be for Cairns during the week we run the course:

- Classroom RePL (Multi Rotor (7kg) with AROC/ELP is \$2425.50 (this is with a 10% discount)
- Online RePL (Multi Rotor (7kg) with AROC/ELP is \$2065.50 (this is with a 10% discount)

If your ranger came to Brisbane for the course instead, we can do the 25kg Multi Rotor at the prices listed above.

Regards

(6) Personal information

On Wed, 17 Oct 2018 at 15:02, HALEY Gemma <Gemma.Haley@des.qld.gov.au> wrote:

Thanks

(6) Personal information

Please let me know when you have a better idea of dates and I will follow up on our end.

Cheers
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: Wicked Copters <enquiries@wickedcopters.com.au>
Sent: Wednesday, 17 October 2018 2:54 PM
To: HALEY Gemma
19-211

Cc: Wicked Copters
Subject: Re: Ranger Training - Cairns

Hi Gemma,

We are due to come to Cairns for some online students this year. We are not sure on an exact date as of yet..

So if we can lock in a date and one ranger was able to attend then that would not be an issue.

Regards
Andrew

On Wed, 17 Oct 2018 at 14:42, HALEY Gemma <Gemma.Haley@des.qld.gov.au> wrote:

Thanks Andrew

At this stage we would only be looking at the possibility of training one Ranger rather than five as initially discussed. This is not yet approved.

I realise that it would be cost prohibitive to get a trainer to come to Cairns to train one person. Can you please let me know if you run any regular training dates in Cairns that we may be able to tap into in the future?

Cheers
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: Wicked Copters <enquiries@wickedcopters.com.au>

Sent: Wednesday, 17 October 2018 10:02 AM

To: HALEY Gemma

Cc: Wicked Copters

Subject: Re: Ranger Training - Cairns

Hi Gemma,

That is no trouble at all.

As another option - are you able to disclose what budget you may have and we can see what we can do to assist with getting the program setup?

Regards

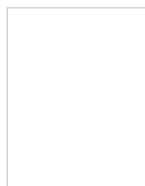
6) Personal info

On Wed, 17 Oct 2018 at 09:56, HALEY Gemma <Gemma.Haley@des.qld.gov.au> wrote:

Hi 6) Personal info

Thanks for your follow up. Unfortunately we will not be able to proceed with the training at this stage due to budget constraints. I will be in touch again if we get the opportunity in the future.

Cheers
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: Wicked Copters <enquiries@wickedcopters.com.au>
Sent: Tuesday, 16 October 2018 9:52 PM
To: HALEY Gemma
Cc: Wicked Copters
Subject: Re: Ranger Training - Cairns

Hi Gemma,

Its been a few weeks since we last spoke. I just wanted to check if you had any questions?

Regards

5) Personal info

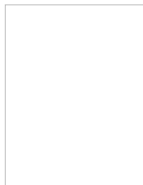
On Fri, 28 Sep 2018 at 13:46, HALEY Gemma <Gemma.Haley@des.qld.gov.au> wrote:

Hi 5) Personal info

Yes Thanks I did receive your email, I have been out in the field the last couple of days. I have forwarded the information on to my supervisor and will be in touch again soon.

Cheers and thanks for your help with this.

Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: enquiries@wickedcopters.com.au <enquiries@wickedcopters.com.au>
Sent: Thursday, 27 September 2018 7:05 PM
To: HALEY Gemma
Subject: Ranger Training - Cairns

Hi Gemma,

Did you get our email quote for your RePL sub 25kg training enquiry sent yesterday? 5) Personal info Send a follow-up check from our ticket system but sometimes these emails end up in SPAM so I just thought I send you a conventional email too.

—Original message—

From: 5) Personal info <support@wickedcopters.com.au>
Sent: 09/26/2018 12:40:24

Hi Gemma

Apologies for the delay in getting back to you regarding the RePL sub 25kg training in Cairns.

The standard price for sub25kg RePL, 4 day course with AROC and ELP is \$3095.

We can give 20% off the cost for payment on order for 5 students, and if you could provide a room for the theory. This would mean a cost of \$2476 per student.

We would fit the timing in with your needs for the 5 students.

Please let me know if you need any further information or a formal quote.

Many thanks,

Regards

5) Personal info

(07) 3715 5534

Regards

Linda Rapson

DIRECTOR

Virtual Edge 4D Pty Ltd t/a Wicked Copters

4) (6) Personal info +61 7 3715 5534 | 1300 970 042

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Date : 5/10/2018 7:55:07 AM

From : "HALEY Gemma"

To : "HURREN Kerry-Anne"

Subject : FW: RePL training Cairns 15-19 Oct 2018

Attachment : Ace Aviation Capability Statement.pdf;image005.png;image004.png;image006.png;image007.png;

FYI second drone training quote.

Cheers

Gemma



Gemma Haley

Ranger

Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

From: ch4p4(6) Personal information@aceaviation.com.au>

Sent: Thursday, 4 October 2018 1:25 PM

To: HALEY Gemma

Subject: RE: RePL training Cairns 15-19 Oct 2018

Gemma

Thanks for your enquiry and time on the phone.

As discussed, we'll be able to complete Remote Pilot Licence (RePL) training either onsite at your training DES room at Tingira St, or at JCU in Smithfield.

Currently, we have a training course scheduled for Cairns on Monday 15th – Friday 19th. The classes typically run 9am – 5pm, with approx. 3 days of aviation theory and two days of practical flying under instruction, plus some examinations.

If these dates are not available, we can be flexible with your team's availability.

In regards to the 25kg Heavy Lift Multi-Rotor endorsement, we can complete this training as part of the 5 day course by integrating it into the field training. We supply all training drones and equipment required.

All of our courses come with a free refresher option, so if at any stage in the future there's some gap training required, you can sit in our classes free of charge.

Check out our course details page here: <https://aceaviation.com.au/our-courses/repl/>

Our standard pricing is:

\$2,295 RePL (5 day course)

\$600 25kg Heavy Lift Multi-Rotor Endorsement

\$2,895 Total per student

We'd love to build a long-term relationship with DES in Cairns, so I can offer you the following:

\$2,495 per student (based on a class of 5 – 6 students). That's a discount of \$400 per student.

Gemma, here's a quick video for the training we did for the SA SES recently <https://www.facebook.com/AA360/videos/468576816902963/>

Additionally, it would be great to have an understanding of the types of operations you will be conducting. I'm sure we can value add to the training by including content which is complementary to your operational requirements. Coupled with this, we also can familiarise the students with conducting operations with your drone of choice.

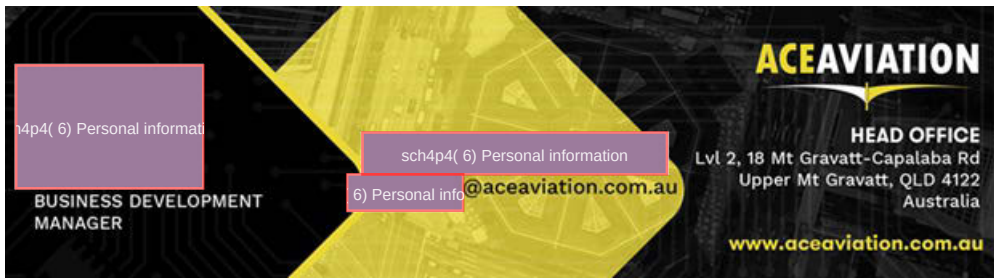
Let me know if you have any questions regarding the above. We'll only be too pleased to accommodate your requirements!

Kind regards

19-211

File F

Page 78 of 462



From: HALEY Gemma <Gemma.Haley@des.qld.gov.au>
Sent: Tuesday, 25 September 2018 3:16 PM
To: Ace Aviation Information <info@aceaviation.com.au>
Subject: RePL training Cairns 15-19 Oct 2018

Hi

Are there any spaces available in the Cairns RePL training program scheduled for the 15-19 Oct? I have a few other questions about the training. Can someone please give me a call on 07 4047 9651 I have tried the hotline number but have been unable to get through.

Thanks
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

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Date : 14/01/2019 8:33:57 AM

From : "HEMSON Graham"

To : "ARMSTRONG Bridget" , "LOW Jesse"

Cc : "HITCHCOCK Nicole" , "MARSHALL Lew"

Subject : FW: Approved additional expenditure

Attachment : image001.png;image002.png;image004.png;

Please note the highlighted expenditure approvals for which we have responsibility and also the broader expenditure plans in case we may need or be asked to be involved.

Also note Green highlighted drone training. Please ensure Ass PRs establish whether any TS staff need to have drone training.

Bridget and Jesse and Nicole, we'll need to talk about the automated reef surveys after I have re-engaged with AIMS.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: SCHAPER Dan

Sent: Thursday, 3 January 2019 10:04 AM

To: ORGILL Dave; HEMSON Graham; KITCHENER Rachel; ALDERSON Tina; BADDILEY Craig

Cc: HEAD Damien

Subject: Approved additional expenditure

Hi All,

While I was acting RD last year there was requests and consideration for projects to utilise some under expenditure which has occurred through increased funding and delays in appointing to new positions. I had a final phone call with Richard Quincey yesterday and below are a list of agreed projects to proceed with this financial year. If there is anything which was put up and not approved below, can give me a call and I will go through reasons if required, otherwise proceed with progressing below this financial year.

Idea	From	\$ estimate	Notes
Bring forward 2019-20 staff increases	Operations Group		already happening
charter vessel given delay in Reef Resilience	Operations Group		Explore increased use of Reef Heron first given some vessel master positions also appointed but agreed to charter when required
Gladstone base redevelopment - FOT shed	Operations Group	90,000	Approved, letter of variation to be prepared
Southern Whitehaven walking track and lookout	Strategy Group	300,000	Approved
Increase compliance patrols with increase staff	Dave Orgill		Approved and should occur with increased positions. Compliance still to be targeted for risk areas and times.
Contract RE surveys on priority islands Whitsunday fire needs assessment, long unburnt Whitsunday weed mapping and assessment Keppels fire needs assessment	Graham Hemson	80,000	Approved, however need to prioritise most important for this financial year (most important and high cost). Engage herbarium and add onto existing work programs rather than replace already planned work.
Increase planned burning	Dave Orgill		If conditions are suitable and burns are approved proceed.
Moorings maintenance	Dave Orgill	50,000	Supported, Dan to further discuss with Nicole.
Picnic table replacement	Dan Schaper	20,000	Approved, recycled plastic tables - 20 tables
Summer activities, APS5 for 4 mnths	Strategy Group	30,515 to \$60,000	Approved, within already allocated labour budget
Additional APS5 assistance with C/W island ABP 19-211	Mark Read File F	37,000	Approved, Richard to confirm with

projects/activities			Mark
Additional PO3/A05 for 6 months assist with permits backlog	Angela Foster	45,000	Approved, 6 months only, no extensions
Automated Reef Surveys - working with AIMS on technology transfer program, ROVs AUVs, rangerbot	Graham Hemson	50,000	Support investigating but only purchase equipment if confident on their use and suitability. Be sure will do what want before purchase. Could charter vessel or support trials from FMP vessels. Activity needs to focus on need and data use, management.
Coastal bird training online package	Graham Hemson	30,000	Approved if can be delivered
Upgrade and replacement of Raine Island base station	Tina Alderson	25,000	Approved, however need to purchase material before end of financial year and store somewhere suitable
Tingira St Office upgrade/ lease to accommodate additional staff	Dan Schaper	\$30,000	Approved, details to be determined but most likely for fitout reconfigurations and possible additional floor space in existing building (lease) dependant on on-going costs
Compliance equipment (New compliance kits for 2 new 005 staff, 3 X Lens for camera given to us from FOT (Jakarra, Whimbrel and Reef Ranger), New GPS of Reef Ranger Compliance Kit, New Binos for Jakarra and Whimbrel, tape recorders for all staff in Cairns)	Ian Osborn	\$20,000	Approved. Make sure binoculars are considered in consultation with seabird request below.
Conference room communication equipment, Polycom CX5500 (Cairns)	Dan Schaper	\$9,000	Approved
MED 1 for skippers	Craig Baddiley	\$60,000	Approved, course to be arranged around 3 week slipping period of Reef Ranger
Cameras at Whitehaven and Tongue Point to provide live feed, can use to monitor level or use	Damien Head	50,000	Approved, needs discussion with Tourism Industry
Bring forward a vessel replacement	Richard Quincey		Dan to talk to Craig on what could bring forward
Drone training	Lee Hess		Approved. Need to discuss the need for training and be clear on if needed at what locations. Limit the training numbers to requirements. Dan to discuss with Chris Cochrane and possible purchase for Reef Resilience.
Equipment for bird surveys - \$18k binoculars + \$3.5k spotter scope for Reef Resilience	Julie Dutoit	21,500	Approved, numbers to be further interrogated to ensure purchases are required and sufficiently utilised, also refer to compliance request above.
Diving communication equipment - standardising and replacement schedule	Lee Hess	18,000	Approved, purchases to be in accordance with dive committee recommendations.

Regards,

Dan Schaper

Principal Ranger (North GBR)

Great Barrier Reef & Marine Parks Region/ Queensland Parks and Wildlife Service



Department of Environment and Science

P 07 4047 9653

Mob. (6) Personal info

PO Box 685, Bungalow, Qld. 4870

Published on DES Disclosure Log
RTI Act 2009

Date : 17/01/2019 1:59:16 PM

From : "HEMSON Graham"

To : "BROOK Scott"

Subject : FW: CASR 101.237 query [SEC=UNCLASSIFIED]

Attachment :

image001.png;image008.png;image009.png;image010.png;image011.png;image003.png;image004.png;image006.png;image012.png;

[Down the bottom](#)



Graham Hemson PhD

Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: HEMSON Graham

Sent: Wednesday, 12 October 2016 3:31 PM

To: HEMSON Graham

Subject: RE: CASR 101.237 query [SEC=UNCLASSIFIED]

[When I'm swooping my shiny new drone around the Cap Cays I'll owe you one.](#)

From: HEMSON Graham

Sent: Wednesday, 12 October 2016 2:54 PM

To: GRAY Kristie <Kristie.Gray@npsr.qld.gov.au>

Cc: NASH-ARNOLD Matthew <Matthew.Nash-Arnold@npsr.qld.gov.au>

Subject: RE: CASR 101.237 query [SEC=UNCLASSIFIED]

[Beautifully crafted prose, when's the first novel coming out?](#)

From: GRAY Kristie

Sent: Wednesday, 12 October 2016 2:52 PM

To: HEMSON Graham <Graham.Hemson@npsr.qld.gov.au>

Cc: NASH-ARNOLD Matthew <Matthew.Nash-Arnold@npsr.qld.gov.au>

Subject: RE: CASR 101.237 query [SEC=UNCLASSIFIED]

[Ok, so the heavier drones are a new development also – thought it must have been old news, sorry.](#)

[Sooooo, how's this then:](#)

As of 29 September 2016, the Civil Aviation Safety Authority (CASA) no longer mandates remote pilots licences or organisational operators certificates (Attachment 1) for the use of UAVs less than 2kg anywhere; and QPWS can now operate UAVs up to 25kg on QPWS-owned protected areas (excluding areas currently leased to third parties). These changes significantly reduces previous impediments to the operation of UAVs.



Kristie Gray

Senior Project Officer (Operational Support)
Operational Support, Park Services
Department of National Parks, Sport and Racing

P 07 3199 7564
Level 19, 111 George St, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Office days: Monday, Tuesday, Wednesday and Thursday.

From: HEMSON Graham

Sent: Wednesday, 12 October 2016 2:35 PM

To: GRAY Kristie <Kristie.Gray@npsr.qld.gov.au>

Subject: RE: CASR 101.237 query [SEC=UNCLASSIFIED]

[Ooops and lose the 'is' after 2016, and the 'a' in front of UAVs and get rid of operate](#)

From: HEMSON Graham

Sent: Wednesday, 12 October 2016 2:01 PM

To: GRAY Kristie <Kristie.Gray@npsr.qld.gov.au>

Subject: RE: CASR 101.237 query [SEC=UNCLASSIFIED]

[No that's not good as both change were made in September so try this.](#)

As of 29 September 2016, is the Civil Aviation Safety Authority (CASA) no longer mandates remote pilots licences or organisational

operators certificates (Attachment 1) for the use of a UAVs less than 2kg [anywhere and](#) operate UAVs up to 25kg above QPWS owned protected areas (excluding areas currently leased to third parties). This significantly reduces associated cost impediments to the operation of UAVs.

From: GRAY Kristie
Sent: Wednesday, 12 October 2016 1:57 PM
To: NASH-ARNOLD Matthew <Matthew.Nash-Arnold@npsr.qld.gov.au>; HEMSON Graham <Graham.Hemson@npsr.qld.gov.au>
Subject: RE: CASR 101.237 query [SEC=UNCLASSIFIED]

I still tweaked the wording a little according to the info below...

New first para:



Kristie Gray
Senior Project Officer (Operational Support)
Operational Support, Park Services
Department of National Parks, Sport and Racing
P 07 3199 7564
Level 19, 111 George St, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001

Office days: Monday, Tuesday, Wednesday and Thursday.

From: NASH-ARNOLD Matthew
Sent: Wednesday, 12 October 2016 11:48 AM
To: HEMSON Graham <Graham.Hemson@npsr.qld.gov.au>
Cc: GRAY Kristie <Kristie.Gray@npsr.qld.gov.au>
Subject: FW: CASR 101.237 query [SEC=UNCLASSIFIED]

Thanks Graham.

I don't think this changes our bid, only confirms the need to include the contractor component in the evaluation.



Matthew Nash-Arnold
A/Director, Operational Support
Park Services, Queensland Parks and Wildlife Service
Department of National Parks, Sport and Racing
P 07 3199 7550 | M (6) Personal info
Level 19, 111 George St, Brisbane QLD 4000
Visit Spatial Information Services: <http://qpws/spatial-services>

From: HEMSON Graham
Sent: Wednesday, 12 October 2016 11:39 AM
To: NASH-ARNOLD Matthew
Subject: FW: CASR 101.237 query [SEC=UNCLASSIFIED]

FYI it turns out that we can fly drones up to 25kg above QPWS land without a remote pilots licence or operators certificate. That said our own policy if and when its developed might well stipulate otherwise.

From: MELZER Cate
Sent: Wednesday, 12 October 2016 11:19 AM
To: HEMSON Graham <Graham.Hemson@npsr.qld.gov.au>
Cc: MELZER Rhonda <Rhonda.Melzer@npsr.qld.gov.au>; QPWS Policy and Legislation <QPWSPolicyandLegislation@npsr.qld.gov.au>; WARING Brett <Brett.Waring@npsr.qld.gov.au>; NOBLE Bruce <Bruce.Noble@npsr.qld.gov.au>
Subject: FW: CASR 101.237 query [SEC=UNCLASSIFIED]

As requested.

Cate

From: sch4p4(6) Personal information <[redacted]@casa.gov.au>
Sent: Wednesday, 12 October 2016 9:14 AM
To: MELZER Cate
Subject: CASR 101.237 query [SEC=UNCLASSIFIED]

UNCLASSIFIED

Good morning Kate,

Following on from our conversation relating to CASR 101.237 and the question about the conditions for an RPA operation over QPWS land, I can advise the following: for an operation to be conducted by the QPWS in accordance with CASR 101.237:

- The RPA must be owned by the QPWS;
- The RPA must be operated by an employee of the QPWS;
- The employee must not receive any remuneration other than normal salary arising from the operation of the RPA;
- The RPA must be no greater than 25 KG;
- If the RPA is between 2 – 25 KG, then it must only be operated over land owned by the QPWS;
- The RPA must not be used for any other purpose other than the business of the QPWS;
- Any imagery obtained from the RPA must be used solely within the QPWS and must not be sold to a third party;
- If there was a segment of land within the QPWS owned land that is leased out to a third party, then the RPA is not to be operated over such land;
- The fact that the public may have access to the QPWS land does not prohibit such operations under CASR 101.237 but the above is to be complied with;
- The standard conditions are still to be complied with such as (CASR 101.238):
 - No ops within 30 metres of a person that is not directly associated with the operation;
 - No higher than 400 feet AGL by day;
 - No operation within 3 NM of the movement area of a controlled aerodrome;
 - All operations must be conducted Line of Sight only;
 - CASR 101.055 is to be complied with in that no hazard is to be caused to another aircraft, another person or property;
 - The RPA is not to be operated over a populous area. A populous area can be defined as a single person if the RPA is a multicopter due to the flight dynamics and the outcome should the multicopter fail during flight;
 - The person operating the RPA is to only operate a single RPA at a time.

As you can see, this would enable the QPWS to operate an RPA not above 25 KG over land so long as the QPWS owned such land or occupied such land. The last part would be a question for a legal determination if the public had access to the land.

This email is only provided as guidance because at the end of the day, it is for the QPWS to determine if their proposed operation would fit into the above criteria. CASA cannot make such a determination for the QPWS but can only provide guidance based on the information supplied. I trust that this meets your needs.

Regards and safe operations,

ch4p4(6) Personal informatio

Safety Specialist
Office of Airspace Regulation
Air Navigation, Airspace & Aerodromes Branch
CASA Aviation Group

p: (02) 6217 1550 or 131757 m: ch4p4(6) Personal informatio
f: (02) 6217 1747
www.casa.gov.au

Aviation House, 16 Furzer Street, Phillip ACT 2606
GPO Box 2005, Canberra ACT 2601



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Please consider the environment before printing this e-mail

Date : 10/10/2018 9:57:09 AM
From : "CHAPMAN Felicity"
To : "JEFFERIS Celia"
Subject : Model of drone purchased
Attachment : image001.jpg;image001.png;image003.png;image005.png;

Celia

Can you find a carry case/backpack for a DJI Phantom 4 Pro V2 – invoice below.



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M 4(6) Personal inform
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: CHAPMAN Felicity
Sent: Wednesday, 3 October 2018 10:44 AM
To: 'Tara Potter'
Subject: RE: Rise Above Tax Invoice #N59627

Tara

Can you advise on a carry case for the drone we purchased from you recently?

Felicity



Felicity Chapman
A/Principal Ranger Southern Great Barrier Reef
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M 4(6) Personal inform
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: 4(6) Personal inform@riseabove.com.au>
Sent: Friday, 14 September 2018 12:00 PM
To: CHAPMAN Felicity
Subject: Rise Above Tax Invoice #N59627

ABN: 22 168 957 499
PH: 02 4647 3450

SHIP TO:

Tel: 49 716519
Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

SOLD TO:

Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

Tax Invoice

INVOICE #: N59627
Date Placed: 14/09/2018
Date Invoiced: 14/09/2018
Paid
Date Due: 14/09/2018

QTY	NAME
1	DJI Phantom 4 Pro V2.0 Drone
1	DJI Phantom 4 Series - High Capacity Battery (Part 64)

UNIT PRICE	TAX	SUBTOTAL
4(7)(1)(c) Business/commercial/professional/financial		

Shipped Via: AusPost Standard Shipping
Shipping Cost: \$0.00

Shipping Subtotal:	\$0.00
GSTInc:	\$244.36
Grand Total:	\$2,688.00
Amount Paid:	\$2,688.00
Balance Due:	\$0.00

ORDER PAYMENT HISTORY

DATE	PAYMENT METHOD	AMOUNT PAID
14/09/2018	Master Card	\$2,688.00
Total Amount Paid:		\$2,688.00

Direct Bank Deposit or Internet Transfer
 Send To: Rise Above Aerial Cinematography
 Commonwealth Bank of Australia
 BSB: 062-185 Ac/No. 10731227

Please leave your order/invoice number as a payment reference. Once you have deposited the full amount, please email a copy of the payment confirmation to sales@riseabove.com.au.

Credit Card - By Phone
 Master Card or Visa
 Please call (02) 4647 3450 to pay by credit card.

Paypal
 Send payment to sales@riseabove.com.au with your invoice number as your reference.

Please note all prices are shown in AUD

By proceeding with this order, you acknowledge that you have read and agree to the terms and conditions located on www.riseabove.com.au/terms-of-use

Rise Above Aerials - 2/40 Dunn Rd. Smeaton Grange NSW 2567

Date : 5/11/2018 12:51:40 PM
From [sch4p4(6) Personal information]
To : "JEFFERIS Celia"
Subject : Phantom 4 Back Pack
Attachment : 1.png;2.png;3.png;

Hi Celia,

Thank you for taking over this matter on behalf of Felicity so we can have it sorted out for you.

The back pack will fit a Phantom 4 Pro V2. There is zippers both at the top of the back pack, and also a bottom compartment with zippers. If you attempt to pop the drone into the back pack from the top, it will not fit in. Therefore, you will be require to open the bottom zips and pop the drone in (legs facing up).

We will be sending your back pack out to the address you provided to me over the telephone by tomorrow.

Kind regards,



[sch4p4(6) Personal information]

Sales Administration |

Rise Above Custom Drone Solutions

P: 02 4647 3450

E: [person@riseabove.com.au]

2/40 Dunn Rd
Smeaton Grange NSW

www.riseabove.com.au/



"If you have a couple of minutes, it would be appreciated if you could leave a quick review on our [Facebook](#) or [Google](#) page (or both!). If you have any questions or need any assistance in the future please do not hesitate to contact us!"

Date : 14/12/2018 12:58:47 PM
From : "Queensland Shared Services"
To : "CHAPMAN Felicity"
Cc : "vilano.cabonce@dsiti.qld.gov.au" , "joy.kleimann@dsiti.qld.gov.au" , "JEFFERIS Celia"
Subject : QSS Finance FI2092966: EXPENSE REVIEW - UAV drone
Attachment : 2019DES0021.xls;

Good Afternoon Felicity,

Asset 2401025152 (UAV Drone) has been capitalised for \$2443.64 from G/L account 530304.

Thank you

Kind Regards,

Ayub Khan
Finance Officer
Assets (Advisory Services)
Queensland Shared Services
Ph 07 3021 4376.

Record Details:

Number: FI2092966

Category: Journal

Subject: EXPENSE REVIEW - UAV drone

Description: CHAPMAN Felicity SEP-18 UAV drone

Status: Awaiting Data Entry

Created: 11-10-2018 13:23:45

Ref:MSG28882589

**
** Purpose of Journal:
**
**

**
** Prepared By:
** Name: Ayub Khan
** Signature:

ch4p4(6) Personal informati

** Position: FO - Assets
** Date: 13.12.2018 Phone: 3021 4376

**
** Approved By:
** Name: Neil Rolley
** Signature:
** Position: SFO - Assets
** Date: 14.12.2018 Phone: 3021 4379

**
** Acceptor:
** Name:
** Signature:
** Position:
** Date: Phone:

Total DR	2,443.64
Total CR	- 2,443.64
Total Variance	-

**		Seq	CompCode	DocDate	PostDate	DocType	Currency	Reference	HeaderText	PostingPeriod	LinItemRefKey2	IdenceType
AS	HDR	1	2401	04.10.2018	13.12.2018	AA	AUD	2019DES0021	To 2401025152-6000062306	6		
**			GL Account	CostCentre	ProfitCentre	InternalOrder	WBS Element	TaxCode	Amount	Dr/Cr	ItemText	preSummmro(PraikChpE
GL	ITM	1	530304	1003225				PZ	2443.64	CR	Tfr to 2401025152 fr GL530304 ref 6000062306.	
AS	ITM	1						PZ	2443.64	DR	Tfr fr GL 530304 ref 6000062306.	
**	Additional rows must be copied and inserted above this row											

**
** QSS Journal Processing Team Action
**

Name: _____
Position: _____

Signature: _____
Date: _____

☐

The Total \$ value in SAP agrees to the total of the Journal \$ _____

☐

Check no post upload error report was generated in SAP

Date : 4/10/2018 2:36:27 PM

From : "O'CONNELL Julianne"

To : "JEFFERIS Celia"

Subject : RE: asset registration

Attachment : image001.png;image003.png;image004.png;

How did he do that I hope not on cc

Yes we have to register in Loc8 and then into SAP, so the barcode number is created in Loc8 AST-1234 and then we have to register in SAP.

J



Julianne OConnell

Administration Officer

QPWS | Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4962 5202 | VoIP 35202 E julianne.oconnell@des.qld.gov.au

Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802

PO Box 5332, AIRLIE BEACH QLD 4802

www.npsr.qld.gov.au

From: JEFFERIS Celia

Sent: Thursday, 4 October 2018 2:28 PM

To: O'CONNELL Julianne

Subject: asset registration

Hi Julianne

Damon recently bought a drone. Are we still registering assets in SAP or is it all done in LOC8 now?



Celia Jefferis

Administration Officer, Southern Great Barrier Reef

Area

Queensland Parks and Wildlife Service

Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4971 6501 | VoIP 22501 |

Level 2 | 20-22 Herbert Street | Gladstone QLD 4680

PO Box 5065 | Gladstone QLD 4680

Email: celia.jefferis@des.qld.gov.au

Visit us online at www.des.qld.gov.au

Date : 6/12/2018 4:15:17 PM
From : "O'CONNELL Julieanne"
To : "JEFFERIS Celia"
Cc : "HARTLEY Zoe"
Subject : RE: AST-0058429 Drone
Attachment : Curtis rptCoa002.pdf;image001.png;image005.png;image004.png;image006.png;
Request has been saved with notification no. 000601073178

Hi Celia

Sorry just ask Zoe to assist or Zoe can register the asset. No you should not be transferring are you registering as a LVA or attractive at the beginning, I note on your spreadsheet you have a cost centre where the investment order should be so this will be 80096097.

Zoe can you help Celia (remember Plant 2401) and update our register with the details, send to me for approval.

Background Zoe this was purchased on CC now registering in SAP as LVA, you will need to get invoice and state somewhere in SAP it was purchased by corporate card.

Celia – at no time was the transaction credited and a PO issued still remains purchased on CC.

J



Julieanne OConnell

Administration Officer

QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4962 5202 | VoIP 35202 E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

From: JEFFERIS Celia
Sent: Thursday, 6 December 2018 4:02 PM
To: O'CONNELL Julieanne
Subject: FW: AST-0058429 Drone

Hi Julieanne

I'm thinking this got lost in the million emails you receive every day :)

I'm just following up on the drone purchased on corp card recently. I tried to register it in SAP, but I got a message saying I needed to do an asset transfer.

Are you able to help?

Celia.

From: JEFFERIS Celia
Sent: Thursday, 8 November 2018 11:11 AM
To: O'CONNELL Julieanne <Julianne.OConnell@des.qld.gov.au>
Subject: FW: AST-0058429 Drone

Hi Julieanne

Wondering if you can help me?

I tried to register the drone in SAP and I received the following message regarding the cost centre.

How do I do an Asset Transfer?

Kind regards
Celia

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: O'CONNELL Julieanne
Sent: Monday, 15 October 2018 2:26 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: AST-0058429 Drone

Request has been saved with notification no. 000601042447

Help

Cost Centre 1003225 belongs to a new Profit Centre. Asset transfer is required.

Message No. ZFI037

Diagnosis

The Cost Centre entered does not belong to the same Profit Centre as the previously assigned Cost Centre.

Procedure

An Asset Transfer is required to carry out this change of Cost Centre.

OK

Hi Celia
I have created the drone in Loc8 if you wish to enter into SAP.
Tks



Julieanne OConnell
Administration Officer
QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science
P 07 4962 5202 | VoIP 35202 | E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

Cost Collector

Capital Int OrderActivity

Status Old WBS

L GBR Marine Coastal and Isla**LC GBR Southern****LCI Curtis Island****XFC QPWS Curtis Island Emp**

CTR: 1002340	Estate Mgmt - Curtis Island FC	80068705	FBAAA: Estate Management	O	1000540
CTR: 1003225	Estate Mgmt - Curtis Island FC	80096097	GFAAA: Estate Management	O	GFXFCLCIAAA
CTR: 1003226	FIRE PROJECTS - CURTIS ISLAND	80096098	GFFF5: Curtis Island Fire	O	GFXFCLCIFF5
CTR: 1003227	Mtc - Priority - Curtis Is	80096099	GFMA1: Mtc - Priority	O	GFXFCLCIMA1
CTR: 1003228	Mtc - Other - Curtis Island	80096100	GFMA3: Mtc - Other	O	GFXFCLCIMA1
CTR: 1003229	Pests - Curtis Island	80096101	GFPP6: Curtis Is Vertebrate Pest Ctrl	O	GFXFCLCIPP6
CTR: 1003230	Curtis Island Holding Account	80096102	GFYAS: Holding Account	O	GFXFCLCIYAS

Report Includes 7 Cost Collectors

Date : 7/12/2018 9:23:19 AM
From : "JEFFERIS Celia"
To : "HARTLEY Zoe"
Subject : RE: AST-0058429 Drone
Attachment : image001.png;image007.png;image002.png;image003.png;image005.png;
Request has been saved with notification no. 000601073178

I will have another go using the investment order.

Celia :)

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: HARTLEY Zoe
Sent: Friday, 7 December 2018 9:11 AM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: AST-0058429 Drone

What would you like me to do with this one?



Zoe Hartley
Administration Officer
Great Barrier Reef and Marine Park Region | Qld. Parks and Wildlife Service
Department of Environment and Science

P 07 4962 5205 Ext. 35205 zoe.hartley@des.qld.gov.au
Cnr Shute Harbour and Mandalay Rds, Jubilee Pocket, Qld, 4802
PO Box 5332, Airlie Beach, Qld, 4802

From: O'CONNELL Julieanne
Sent: Thursday, 6 December 2018 4:15 PM
To: JEFFERIS Celia
Cc: HARTLEY Zoe
Subject: RE: AST-0058429 Drone

Hi Celia

Sorry just ask Zoe to assist or Zoe can register the asset. No you should not be transferring are you registering as a LVA or attractive at the beginning, I note on your spreadsheet you have a cost centre where the investment order should be so this will be 80096097.

Zoe can you help Celia (remember Plant 2401) and update our register with the details, send to me for approval.

Background Zoe this was purchased on CC now registering in SAP as LVA, you will need to get invoice and state somewhere in SAP it was purchased by corporate card.

Celia – at no time was the transaction credited and a PO issued still remains purchased on CC.



Julieanne OConnell
Administration Officer
QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4962 5202 | VoIP 35202 E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

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Are you able to help?

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How do I do an Asset Transfer?

Kind regards
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: O'CONNELL Julieanne
Sent: Monday, 15 October 2018 2:26 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: AST-0058429 Drone

Request has been saved with notification no. 000601042447

Cost Centre 1003225 belongs to a new Profit Centre. Asset transfer is required.

Message No. ZFI037

Diagnosis

The Cost Centre entered does not belong to the same Profit Centre as the previously assigned Cost Centre.

Procedure

An Asset Transfer is required to carry out this change of Cost Centre.

OK

Hi Celia
I have created the drone in Loc8 if you wish to enter into SAP.
Tks



Julianne OConnell

Administration Officer

QPWS | Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4962 5202 | VoIP 35202 E julianne.oconnell@des.qld.gov.au

Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802

PO Box 5332, AIRLIE BEACH QLD 4802

www.npsr.qld.gov.au

Date : 17/12/2018 4:18:53 PM
From : "JEFFERIS Celia"
To : "BURKE Steve" , "LANYON Oliver"
Subject : RE: Drone Purchase
Attachment : image003.png;image004.jpg;
Hi guys

Dave has rejected the request to purchase a drone because we already have one.

He has asked if you could provide justification for an additional drone?

Kind regards
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: JEFFERIS Celia
Sent: Friday, 14 December 2018 3:43 PM
To: BURKE Steve <Steve.Burke@des.qld.gov.au>
Subject: RE: Drone Purchase

Hi Steve

I've completed the requisition process, however we need to extend Camera House into our code before I submit it otherwise they will reject it due to non-compliance.

Will let you know as soon as it's done :)

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: LANYON Oliver
Sent: Friday, 14 December 2018 3:27 PM
To: BURKE Steve <Steve.Burke@des.qld.gov.au>
Cc: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: Re: Drone Purchase

Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

From: BURKE Steve <Steve.Burke@des.qld.gov.au>
Date: 14/12/18 14:13 (GMT+10:00)
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: Drone Purchase

OI

I have priced some drones that we discussed and I can get one from Camera house in Rockhampton for \$2799.00.

Will this be ok.

Regards
Steve



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

(07) 49915162 | (6) Personal information | steve.burke@des.qld.gov.au



1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

Date : 14/12/2018 3:42:44 PM
From : "JEFFERIS Celia"
To : "BURKE Steve"
Subject : RE: Drone Purchase
Attachment : image001.png;image002.jpg;
Hi Steve

I've completed the requisition process, however we need to extend Camera House into our code before I submit it otherwise they will reject it due to non-compliance.

Will let you know as soon as it's done :)

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: LANYON Oliver
Sent: Friday, 14 December 2018 3:27 PM
To: BURKE Steve <Steve.Burke@des.qld.gov.au>
Cc: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: Re: Drone Purchase

Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

From: BURKE Steve <Steve.Burke@des.qld.gov.au>
Date: 14/12/18 14:13 (GMT+10:00)
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: Drone Purchase

Ol

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Will this be ok.

Regards
Steve



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science



☎ (07) 49915162 | 📠 4 (6) Personal inform 📧 steve.burke@des.qld.gov.au

1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Date : 31/01/2019 1:17:33 PM
From : "LANYON Oliver"
To : "JEFFERIS Celia" , "BURKE Steve"
Cc : "ORGILL Dave"
Subject : RE: Drone Purchase
Attachment : image001.png;image005.png;image006.jpg;image003.png;
Celia,

Have discussed and Dave is happy to endorse.

Thank you



Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit
Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region
Department of Environment and Science

P 07 49915117 | M (6) Personal infor
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: JEFFERIS Celia
Sent: Monday, 17 December 2018 4:19 PM
To: BURKE Steve; LANYON Oliver
Subject: RE: Drone Purchase
Importance: High

Hi guys

Dave has rejected the request to purchase a drone because we already have one.

He has asked if you could provide justification for an additional drone?

Kind regards
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: JEFFERIS Celia
Sent: Friday, 14 December 2018 3:43 PM
To: BURKE Steve <Steve.Burke@des.qld.gov.au>
Subject: RE: Drone Purchase

Hi Steve

I've completed the requisition process, however we need to extend Camera House into our code before I submit it otherwise they will reject it due to non-compliance.

Will let you know as soon as it's done :)

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: LANYON Oliver
Sent: Friday, 14 December 2018 3:27 PM
To: BURKE Steve <Steve.Burke@des.qld.gov.au>
Cc: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: Re: Drone Purchase

Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

From: BURKE Steve <Steve.Burke@des.qld.gov.au>
Date: 14/12/18 14:13 (GMT+10:00)
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: Drone Purchase

Ol

I have priced some drones that we discussed and I can get one from Camera house in Rockhampton for \$2799.00.

Will this be ok.

Regards
Steve



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

(07) 49915162 | (6) Personal information steve.burke@des.qld.gov.au



1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

Date : 14/12/2018 3:26:40 PM
From : "LANYON Oliver"
To : "BURKE Steve"
Cc : "JEFFERIS Celia"
Subject : Re: Drone Purchase
Attachment : image002.png;image004.jpg;
Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

From: BURKE Steve <Steve.Burke@des.qld.gov.au>
Date: 14/12/18 14:13 (GMT+10:00)
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: Drone Purchase

Ol

I have priced some drones that we discussed and I can get one from Camera house in Rockhampton for \$2799.00.

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Steve Burke

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Department of Environment & Science

☎ (07) 49915162 | 📧 (6) Personal inform 📧 steve.burke@des.qld.gov.au

1s |  oves Drive Yeppoon QLD 4703
PO oon QLD 4703
Vis : www.des.qld.gov.au

Date : 31/01/2019 1:20:29 PM

From : "JEFFERIS Celia"

To : "LANYON Oliver"

Subject : RE: Drone Purchase

Attachment : image001.png;image002.png;image004.png;image006.jpg;

Great news! I have already registered the asset and raised the purchase order – will send it all through now :)

Celia Jefferis

Administration Officer

Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service | Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680

From: LANYON Oliver

Sent: Thursday, 31 January 2019 1:18 PM

To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>; BURKE Steve <Steve.Burke@des.qld.gov.au>

Cc: ORGILL Dave <Dave.Orgill@des.qld.gov.au>

Subject: RE: Drone Purchase

Celia,

Have discussed and Dave is happy to endorse.

Thank you



Oliver Lanyon
Senior Ranger

Capricorn Coast Management Unit

Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region
Department of Environment and Science

P 07 49915117 | M4(6) Personal Inform
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: JEFFERIS Celia

Sent: Monday, 17 December 2018 4:19 PM

To: BURKE Steve; LANYON Oliver

Subject: RE: Drone Purchase

Importance: High

Hi guys

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He has asked if you could provide justification for an additional drone?

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Celia

Celia Jefferis

Administration Officer

Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: JEFFERIS Celia

Sent: Friday, 14 December 2018 3:43 PM

To: BURKE Steve <Steve.Burke@des.qld.gov.au>

Subject: RE: Drone Purchase

Hi Steve

I've completed the requisition process, however we need to extend Camera House into our code before I submit it otherwise they will reject it due to non-compliance.

Will let you know as soon as it's done :)

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VolP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

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Sent: Friday, 14 December 2018 3:27 PM
To: BURKE Steve <Steve.Burke@des.qld.gov.au>
Cc: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: Re: Drone Purchase

Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

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Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science



(07) 49915162 | (6) Personal information | steve.burke@des.qld.gov.au

1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

Date : 11/10/2018 2:50:56 PM
From : "JEFFERIS Celia"
To : "JEFFERIS Celia"
Subject : RE: EXPENSE REVIEW - UAV drone
Attachment : image001.png;image003.png;

Never mind, I found it. It was embedded in the email not a separate attachment.

Celia :)

From: JEFFERIS Celia
Sent: Thursday, 11 October 2018 2:46 PM
To: CHAPMAN Felicity <Felicity.Chapman@des.qld.gov.au>
Subject: RE: EXPENSE REVIEW - UAV drone

No worries. Can you please send me the invoice so I can create the asset shell in SAP?

Thank you
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: CHAPMAN Felicity
Sent: Thursday, 11 October 2018 2:29 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: EXPENSE REVIEW - UAV drone

Celia

Would you be able to do this for me? Just trying to finalise this RTI request today before I go to Curtis.

Felicity



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6521 M (6) Personal infor
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Queensland Shared Services <gss@dsiti.qld.gov.au>
Sent: Thursday, 11 October 2018 1:30 PM
To: CHAPMAN Felicity
Subject: EXPENSE REVIEW - UAV drone

Hi Felicity,

Good afternoon,

I am reviewing certain expense gl accounts of DES to ensure that there no purchases of items that might be considered as SAP registrable assets and are charged as expense.

In this connection, an amount of \$2,443.64 was posted to gl account 530304 and is described as UAV drone. The text description has your name, thus this email.

The amount is within the SAP registrable low value asset threshold. Can you please complete and submit an asset registraton form that asset may be created for this item. Please advise the asset shell once created so that I can prepare a journal to transfer the amount to the asset and from GL530304.

Please do not hesitate to contact me if you have any query regarding the contents of this email.

Thank you.

Kind regards,

Vilano C. Cabonce
Senior Finance Officer (Accounting Services)
Queensland Shared Services
Department of Science, Information Technology and Innovation

P 07 3021 4374, (ext. 74374)
Gabba Towers, Level 10, 411 Vulture Street, Woolloongabba QLD 4102.
vilano.cabonce@dsiti.qld.gov.au
Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Record Details:

Number: FI2092966

Category: General Enquiry

Subject: EXPENSE REVIEW - UAV drone

Description: CHAPMAN Felicity SEP-18 UAV drone

Status: New

Created: 11-10-2018 13:23:45

Ref:MSG27552754

Date : 11/10/2018 2:45:57 PM
From : "JEFFERIS Celia"
To : "CHAPMAN Felicity"
Subject : RE: EXPENSE REVIEW - UAV drone
Attachment : image001.png;image002.png;

No worries. Can you please send me the invoice so I can create the asset shell in SAP?

Thank you
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: CHAPMAN Felicity
Sent: Thursday, 11 October 2018 2:29 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: EXPENSE REVIEW - UAV drone

Celia

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Felicity



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6521 4(6) Personal information
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

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Sent: Thursday, 11 October 2018 1:30 PM
To: CHAPMAN Felicity
Subject: EXPENSE REVIEW - UAV drone

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I am reviewing certain expense gl accounts of DES to ensure that there no purchases of items that might be considered as SAP registrable assets and are charged as expense.

In this connection, an amount of \$2,443.64 was posted to gl account 530304 and is described as UAV drone. The text description has your name, thus this email.

The amount is within the SAP registrable low value asset threshold. Can you please complete and submit an asset registration form that asset may be created for this item. Please advise the asset shell once created so that I can prepare a journal to transfer the amount to the asset and from GL530304.

Please do not hesitate to contact me if you have any query regarding the contents of this email.

Thank you.

Kind regards,

Vilano C. Cabonce
Senior Finance Officer (Accounting Services)
Queensland Shared Services
Department of Science, Information Technology and Innovation

P 07 3021 4374, (ext. 74374)
Gabba Towers, Level 10, 411 Vulture Street, Woolloongabba QLD 4102.
vilano.cabonce@dsiti.qld.gov.au
Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Record Details:

Number: FI2092966

Category: General Enquiry

Subject: EXPENSE REVIEW - UAV drone

Description: CHAPMAN Felicity SEP-18 UAV drone

Status: New

Created: 11-10-2018 13:23:45

Ref:MSG27552754

Date : 11/10/2018 2:57:31 PM
From : "O'CONNELL Julianne"
To : "JEFFERIS Celia"
Subject : RE: EXPENSE REVIEW - UAV drone
Attachment : image001.png;image003.png;image004.png;image006.png;

Sorry Celia

You may have to tell me more I see the GL what cost centre was used for the purchase and where does it sit location wise, it is not attached to another asset ie on a vessel/ Curtis Is. All that as much as you can tell me.

Tks



Julianne OConnell
Administration Officer
QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science
P 07 4962 5202 | VoIP 35202 E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

From: JEFFERIS Celia
Sent: Thursday, 11 October 2018 2:54 PM
To: O'CONNELL Julianne
Subject: RE: EXPENSE REVIEW - UAV drone

Hi Julianne

I have attached the invoice for you. Once created in Loc8 please let me know, I am happy to do the SAP process for you.

Kind regards
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: O'CONNELL Julianne
Sent: Thursday, 11 October 2018 2:41 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: RE: EXPENSE REVIEW - UAV drone

I did not send my email to Felicity you had better forward on.

I you want me create in Loc8 I will need to see the invoice with details and then we have to put into SAP.

J



Julianne OConnell
Administration Officer
QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science
P 07 4962 5202 | VoIP 35202 E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

From: JEFFERIS Celia
Sent: Thursday, 11 October 2018 2:37 PM
To: O'CONNELL Julieanne
Subject: FW: EXPENSE REVIEW - UAV drone

As you predicted.

From: CHAPMAN Felicity
Sent: Thursday, 11 October 2018 2:29 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: EXPENSE REVIEW - UAV drone

Celia

Would you be able to do this for me? Just trying to finalise this RTI request today before I go to Curtis.

Felicity



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6521 p4(6) Personal inform
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Queensland Shared Services <gss@dsiti.qld.gov.au>
Sent: Thursday, 11 October 2018 1:30 PM
To: CHAPMAN Felicity
Subject: EXPENSE REVIEW - UAV drone

Hi Felicity,

Good afternoon,

I am reviewing certain expense gl accounts of DES to ensure that there no purchases of items that might be considered as SAP registrable assets and are charged as expense.

In this connection, an amount of \$2,443.64 was posted to gl account 530304 and is described as UAV drone. The text description has your name, thus this email.

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Thank you.

Kind regards,

Vilano C. Cabonce
Senior Finance Officer (Accounting Services)
Queensland Shared Services
Department of Science, Information Technology and Innovation

P 07 3021 4374, (ext. 74374)
Gabba Towers, Level 10, 411 Vulture Street, Woolloongabba QLD 4102.
vilano.cabonce@dsiti.qld.gov.au

Record Details:

Number: FI2092966

Category: General Enquiry

Subject: EXPENSE REVIEW - UAV drone

Description: CHAPMAN Felicity SEP-18 UAV drone

Status: New

Created: 11-10-2018 13:23:45

Ref:MSG27552754

Date : 11/10/2018 2:40:50 PM
From : "O'CONNELL Julianne"
To : "JEFFERIS Celia"
Subject : RE: EXPENSE REVIEW - UAV drone
Attachment : image001.png;image003.png;image004.png;

I did not send my email to Felicity you had better forward on.
I you want me create in Loc8 I will need to see the invoice with details and then we have to put into SAP.

J



Julianne OConnell
Administration Officer
QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science
P 07 4962 5202 I VoIP 35202 E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

From: JEFFERIS Celia
Sent: Thursday, 11 October 2018 2:37 PM
To: O'CONNELL Julianne
Subject: FW: EXPENSE REVIEW - UAV drone

As you predicted.

From: CHAPMAN Felicity
Sent: Thursday, 11 October 2018 2:29 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: EXPENSE REVIEW - UAV drone

Celia

Would you be able to do this for me? Just trying to finalise this RTI request today before I go to Curtis.

Felicity



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M **p4(6) Personal inform**
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Queensland Shared Services <gss@dsiti.qld.gov.au>
Sent: Thursday, 11 October 2018 1:30 PM
To: CHAPMAN Felicity
Subject: EXPENSE REVIEW - UAV drone

Hi Felicity,

Good afternoon,

I am reviewing certain expense gl accounts of DES to ensure that there no purchases of items that might be considered as SAP registrable assets and are charged as expense.

In this connection, an amount of \$2,443.64 was posted to gl account 530304 and is described as UAV drone. The text description has your
19-211 File F Page 113 of 462

name, thus this email.

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Kind regards,

Vilano C. Cabonce
Senior Finance Officer (Accounting Services)
Queensland Shared Services
Department of Science, Information Technology and Innovation

P 07 3021 4374, (ext. 74374)
Gabb Towers, Level 10, 411 Vulture Street, Woolloongabba QLD 4102.

vilano.cabonce@dsiti.qld.gov.au

Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Record Details:

Number: FI2092966

Category: General Enquiry

Subject: EXPENSE REVIEW - UAV drone

Description: CHAPMAN Felicity SEP-18 UAV drone

Status: New

Created: 11-10-2018 13:23:45

Ref:MSG27552754

Date : 11/10/2018 2:54:00 PM
From : "JEFFERIS Celia"
To : "O'CONNELL Julieanne"
Subject : RE: EXPENSE REVIEW - UAV drone
Attachment : Rise Above tax invoice N59627.pdf;image001.png;image002.png;image005.png;

Hi Julieanne

I have attached the invoice for you. Once created in Loc8 please let me know, I am happy to do the SAP process for you.

Kind regards
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au
Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680
Visit us online at www.des.qld.gov.au

From: O'CONNELL Julieanne
Sent: Thursday, 11 October 2018 2:41 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: RE: EXPENSE REVIEW - UAV drone

I did not send my email to Felicity you had better forward on.
I you want me create in Loc8 I will need to see the invoice with details and then we have to put into SAP.

J



Julieanne OConnell
Administration Officer
QPWS | Great Barrier Reef and Marine Parks Region
Department of Environment and Science
P 07 4962 5202 | VoIP 35202 | E julianne.oconnell@des.qld.gov.au
Corner of Shute Harbour & Mandalay Roads, AIRLIE BEACH QLD 4802
PO Box 5332, AIRLIE BEACH QLD 4802
www.npsr.qld.gov.au

From: JEFFERIS Celia
Sent: Thursday, 11 October 2018 2:37 PM
To: O'CONNELL Julieanne
Subject: FW: EXPENSE REVIEW - UAV drone

As you predicted.

From: CHAPMAN Felicity
Sent: Thursday, 11 October 2018 2:29 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: EXPENSE REVIEW - UAV drone

Celia

Would you be able to do this for me? Just trying to finalise this RTI request today before I go to Curtis.

Felicity



Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M 4(6) Personal inform
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Queensland Shared Services <gss@dsiti.qld.gov.au>
Sent: Thursday, 11 October 2018 1:30 PM
To: CHAPMAN Felicity
Subject: EXPENSE REVIEW - UAV drone

Hi Felicity,

Good afternoon,

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In this connection, an amount of \$2,443.64 was posted to gl account 530304 and is described as UAV drone. The text description has your name, thus this email.

The amount is within the SAP registrable low value asset threshold. Can you please complete and submit an asset registraton form that asset may be created for this item. Please advise the asset shell once created so that I can prepare a journal to transfer the amount to the asset and from GL530304.

Please do not hesitate to contact me if you have any query regarding the contents of this email.

Thank you.

Kind regards,

Vilano C. Cabonce
Senior Finance Officer (Accounting Services)
Queensland Shared Services
Department of Science, Information Technology and Innovation

P 07 3021 4374, (ext. 74374)
Gabba Towers, Level 10, 411 Vulture Street, Woolloongabba QLD 4102.
vilano.cabonce@dsiti.qld.gov.au
Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Record Details:

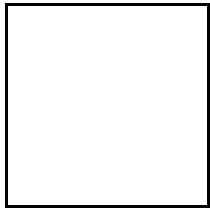
Number: FI2092966
Category: General Enquiry
Subject: EXPENSE REVIEW - UAV drone
Description: CHAPMAN Felicity SEP-18 UAV drone
Status: New
Created: 11-10-2018 13:23:45

Ref:MSG27552754

JEFFERIS Celia

From: CHAPMAN Felicity
Sent: Wednesday, 10 October 2018 9:57 AM
To: JEFFERIS Celia
Subject: Model of drone purchased

From: [REDACTED]@riseabove.com.au>
Sent: Friday, 14 September 2018 12:00 PM
To: CHAPMAN Felicity
Subject: Rise Above Tax Invoice #N59627



ABN: 22 168 957 499
PH: 02 4647 3450

Tax Invoice

INVOICE #: N59627

Date Placed: 14/09/2018

Date Invoiced: 14/09/2018

Paid

Date Due: 14/09/2018

SHIP TO:

Tel: 49 716519
Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

SOLD TO:

Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

QTY	NAME	UNIT PRICE	TAX	SUBTOTAL
1	DJI Phantom 4 Pro V2.0 Drone	\$2,399.00	10.00%	\$2,399.00
1	DJI Phantom 4 Series - High Capacity Battery (Part 64)	\$289.00	10.00%	\$289.00

Shipped Via: AusPost Standard Shipping
Shipping Cost: \$0.00

[REDACTED]

ORDER PAYMENT HISTORY

DATE	PAYMENT METHOD	AMOUNT PAID
14/09/2018	Master Card	\$2,688.00
Total Amount Paid:		\$2,688.00

Direct Bank Deposit or Internet Transfer
Send To: Rise Above Aerial Cinematography
Commonwealth Bank of Australia
BSB: 062-185 Ac/No. 10731227

Please leave your order/invoice number as a payment reference. Once you have deposited the full amount, please email a copy of the payment confirmation to sales@riseabove.com.au.

Credit Card - By Phone

Master Card or Visa

Please call (02) 4647 3450 to pay by credit card.

Paypal

Send payment to sales@riseabove.com.au with your invoice number as your reference.

Please note all prices are shown in AUD

By proceeding with this order, you acknowledge that you have read and agree to the terms and conditions located on www.riseabove.com.au/terms-of-use

Rise Above Aerials - 2/40 Dunn Rd. Smeaton Grange NSW 2567

Date : 5/11/2019 10:00:49 AM

From : "LANYON Oliver"

To : "ORGILL Dave"

Cc : "JEFFERIS Celia"

Subject : RE: FOR ACTION - Management of Drones - Due to Corro ADG by 10am 11 Nov 2019

Attachment : image001.png;image008.jpg;image012.jpg;image002.png;image004.png;image005.jpg;image007.png;image010.png;
Done,

If you need information in the future go to: <https://www.dji.com/au/phantom-4> all the specs are here



Oliver Lanyon
Senior Ranger

Capricorn Coast Management Unit
Queensland Parks & Wildlife Service | Great Barrier Reef & Marine Parks Region
Department of Environment and Science

P 07 49915117 | M (6) Personal info
Level 1 | John Howes Drive Rosslyn Bay 4703
PO Box 770 Yeppoon 4703
E-mail: oliver.lanyon@des.qld.gov.au
Visit us online at www.des.qld.gov.au

From: ORGILL Dave <Dave.Orgill@des.qld.gov.au>

Sent: Tuesday, 5 November 2019 9:21 AM

To: LANYON Oliver

Cc: JEFFERIS Celia

Subject: FW: FOR ACTION - Management of Drones - Due to Corro ADG by 10am 11 Nov 2019

Oliver,

I have had a go at this spreadsheet but there is too much I do not have the answers for.

The sheets which need attention are the additional details for each drone, your MU 2 are listed and details of Damon and Steve's quals to fly and if we have any other staff inducted to fly.

Regards

Dave



Dave Orgill

Principal Ranger, Southern Great Barrier Reef
QPWS and Partnerships | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4971 6515 | F 07 3014 0182 | VolP 22515 | M (6) Personal info
Level 2 | 20-22 Herbert Street | Gladstone QLD 4680
PO Box 5065 | Gladstone QLD 4680
Email: dave.orgill@des.qld.gov.au
Visit us online at www.des.qld.gov.au

I acknowledge that Aboriginal Peoples and Torres Strait Islander Peoples are the Traditional Owners of this country and they retain their relationship and connection to the land, sea and community.
I pay my respects to all Traditional Owners, and to the Elders past, present and the future for land and sea on which I work, live and walk.



From: Corro QPWS gbrmci GBR MPR <QPWSgbrmciGBRMPR.Corro@des.qld.gov.au>

Sent: Tuesday, 5 November 2019 8:28 AM

To: ALDERSON Tina; BADDILEY Craig; HEMSON Graham; HESS Lee; HOSECK Steve; Jackie Chappell; ORGILL Dave; DUNSTAN Andrew

Cc: Corro QPWS gbrmci GBR MPR

Subject: FW: FOR ACTION - Management of Drones - Due to Corro ADG by 10am 11 Nov 2019

Hi,

Please follow the link in Jo's email below to ensure that all information relating to your drones is up to date. Please advise when completed, due 10am 11th November.

Stacey



Stacey Macdonald
Administration Officer
Great Barrier Reef & Marine Parks Region | QPWS & Partnerships
Department of Environment and Science

P 07 4722 5244 | VoIP 20244
Level 10 | 445 Flinders St Townsville 4810
PO Box 5597 Townsville 4810
E-mail: QPWSgbrmciGBRMpr.Corro@des.qld.gov.au

From: Corro DES QPWS GBRMCI <DESQPWSGBRMCI.Corro@des.qld.gov.au>
Sent: Monday, 4 November 2019 12:00 PM
To: Corro DES QPWS GBRMCI; Corro QPWS gbrmci CIR; Corro QPWS gbrmci GBR MPR
Subject: FW: FOR ACTION - Management of Drones - Due to Corro ADG by cob 11 Nov 2019

Hi teams

ACTION: Please provide/update information in all worksheets (use of drones in des, definitions, drones register, drone operator) in the DES drone register located [here](#). Provide nil response or email confirmation to Corro GBRMCI when the task is completed
DUE DATE: To Corro GBRMCI by 12 noon Monday 11 November 2019

Please note – This request relates to ALL drones, not just those used in Marine Parks.

Cheers

Jo

Jo Gruer
Principal Advisor – GBR, Marine Parks, Coastal and Islands
Management and Operations | QPWS & Partnerships
Department of Environment and Science, P 07 3199 7521

From: ABURN Mark <Mark.Aburn@des.qld.gov.au>
Sent: Friday, 1 November 2019 10:07 AM
To: Corro DES QPWS Park Services; Corro DES QPWS GBRMCI; Corro DES QPWS Southern; Corro DES QPWS Northern; Corro DES QPWS WTS
Cc: Corro DES QPWS ADG
Subject: FOR ACTION - Management of Drones - Due to Corro ADG by cob 11 Nov 2019

Hi all,

The request below was originally sent out when the recent bushfire situation was ramping up, so obviously we could only devote a certain amount of attention to this request.
Could I please ask that your teams re-visit the spreadsheet and update any missing data (particularly barcode and asset numbers), including entering in the data of any new drones that have been purchased since September 2019.
Updates should be done via the link below.

Management of drones

ACTION: Further to the email requests below, could you please submit your response ensuring the appropriate information is entered into **all of the tabs** in the SharePoint document. [Please see link here to a departmental register of Drones, pilots and Divisional uses.](#)

Please note – This request relates to ALL drones, not just those used in Marine Parks.

Please have your ED approvals to Corro ADG by cob Monday 11th of November 2019.

Kind regards,

Mark Aburn
Principal Advisor
Office of the Assistant Director-General
Management and Operations | QPWS & Partnerships
Department of Environment and Science



P 07 3199 7526
Level 5, 400 George Street Brisbane QLD 4000
PO Box 15187 CITY EAST QLD 4000

Published on DES Disclosure Log
RTI Act 2009

Date : 14/12/2018 1:31:21 PM
From : "CHAPMAN Felicity"
To : "qss@dsiti.qld.gov.au"
Cc : "JEFFERIS Celia"
Subject : RE: QSS Finance FI2092966: EXPENSE REVIEW - UAV drone
Attachment : image001.png;image003.png;

Ayub

Many thanks for doing this. I appreciate it.

Felicity



Felicity Chapman
Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M b4(6) Personal inform
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: Queensland Shared Services <qss@dsiti.qld.gov.au>
Sent: Friday, 14 December 2018 12:59 PM
To: CHAPMAN Felicity
Cc: vilano.cabonce@dsiti.qld.gov.au; joy.kleimann@dsiti.qld.gov.au; JEFFERIS Celia
Subject: QSS Finance FI2092966: EXPENSE REVIEW - UAV drone

Good Afternoon Felicity,

Asset 2401025152 (UAV Drone) has been capitalised for \$2443.64 from G/L account 530304.

Thank you

Kind Regards,

Ayub Khan
Finance Officer
Assets (Advisory Services)
Queensland Shared Services
Ph 07 3021 4376.

Record Details:

Number: FI2092966
Category: Journal
Subject: EXPENSE REVIEW - UAV drone
Description: CHAPMAN Felicity SEP-18 UAV drone
Status: Awaiting Data Entry
Created: 11-10-2018 13:23:45

Ref:MSG28882589

Date : 21/02/2019 3:03:04 PM
From : "JEFFERIS Celia"
To : "HARTLEY Zoe"
Subject : RE: QSS Finance FI2283736: Stocktake 18-19
Attachment : image001.png;image003.png;image004.png;

Awesome, I hadn't got around to this yet.

One is Damon's drone (AST-0058429) and the other is Burkey's drone (NQA02522) which I created in SAP before Julieanne put it into Loc8.

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | QPWS & Partnerships | Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680

From: HARTLEY Zoe
Sent: Thursday, 21 February 2019 2:54 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Subject: FW: QSS Finance FI2283736: Stocktake 18-19

Don't sweat this one either, have worked it out and making some changes in Loc8 and Sap now to fix it up ☺



Zoe Hartley
Administration Officer
Great Barrier Reef and Marine Park Region | QPWS & Partnerships
Department of Environment and Science

P 07 4962 5205 | VoIP 35205
Cnr Shute Hbr and Mandalay Rds, Jubilee Pocket, Qld 4802
PO Box 5332, Airlie Beach, Qld, 4802
E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

From: HARTLEY Zoe
Sent: Thursday, 21 February 2019 9:47 AM
To: JEFFERIS Celia
Subject: FW: QSS Finance FI2283736: Stocktake 18-19

Hi Celia

Can you have a look at the highlighted section below and let me know if you can tell me what she's talking about.

I can clearly see asset 2401025152 on the additional list you sent through but the second one she mentions?????

Thanks mate



Zoe Hartley
Administration Officer
Great Barrier Reef and Marine Park Region | QPWS & Partnerships
Department of Environment and Science

P 07 4962 5205 | VoIP 35205
Cnr Shute Hbr and Mandalay Rds, Jubilee Pocket, Qld 4802
PO Box 5332, Airlie Beach, Qld, 4802
E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

From: Queensland Shared Services <qss@dsiti.qld.gov.au>
Sent: Wednesday, 20 February 2019 9:49 AM
To: HARTLEY Zoe
Subject: QSS Finance FI2283736: Stocktake 18-19

Dear Zoe,

I have updated the inventory date and details on additional items.

Please note I did not update the inventory date for asset 2401016654 Phone Satellite (Additions with no barcode) as per your comment the phone is no longer on vessel (not been sighted) therefore this needs to be written off via eform.

Also on additions with barcode the asset 2401025152 has a barcode no AST-0058429 with serial no 11UCF720A40216 however there is another asset which is 2401025161 with barcode no NQA02522 has a serial no CP.PT00000231.01 both the assets are Drone - can you please clarify which asset needs these details changed

Please call me should you have any queries

Thanks

Kind Regards,

Shrestika Sheel Singh
Finance Officer, Assets
Queensland Shared Services
Department of Science, Information Technology and Innovation
P 07 3021 4328, (ext. 74328)
shrestika.singh@dsiti.qld.gov.au

Record Details:

Number: FI2283736

Category:

Subject: Stocktake 18-19

Description: email received from: zoe.hartley@des.qld.gov.au

Completed stocktake attached for Gladstone/Rossllyn Bay area.

[\[cid:image002.png@01D4C862.C9FE3F60\]](#)

Zoe Hartley

Administration Officer

Great Barrier Reef and Marine Park Region I QPWS & Partnerships

Department of Environment and Science

P 07 4962 5205

VoIP 35205

Cnr Shute Hbr and Mandalay Rds, Jubilee Pocket, Qld 4802

PO Box 5332, Airlie Beach, Qld, 4802

E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

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Status: New

Created: 19-02-2019 14:55:04

Date : 31/01/2019 2:44:09 PM

From : "JEFFERIS Celia"

To : "BURKE Steve"

Subject : RE: QUOTATION - 417479 from Garricks Camera House

Requisition signed and submitted. Fingers crossed we have a purchase order by this time tomorrow.

I also have an asset barcode sticker here, which I will post to you. Could you please attach it to the drone for me?

Thank you kindly
Celia

Celia Jefferis
Administration Officer
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service | Department of Environment and Science

P 07 4971 6501 | VoIP 22501 | E celia.jefferis@des.qld.gov.au Level 2, 20-22 Herbert Street (PO Box 5065), GLADSTONE QLD 4680

-----Original Message-----

From: BURKE Steve
Sent: Thursday, 31 January 2019 1:51 PM
To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>
Cc: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: FW: QUOTATION - 417479 from Garricks Camera House

You have created FI2255839 click here to view

Celia

New quote attached, that model of drone has been discontinued, this one is basically the same but does not have as long fly time and a little cheaper.

Regards
Steve

Steve Burke
Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR Queensland Parks and Wildlife Service | GBR & Marine Parks Department of Environment & Science

- (07) 49915162 | (6) Personal info | steve.burke@des.qld.gov.au

1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

-----Original Message-----

From: rockhampton@camerahouse.com.au <rockhampton@camerahouse.com.au>
Sent: Thursday, 31 January 2019 1:35 PM
To: BURKE Steve
Subject: QUOTATION - 417479 from Garricks Camera House

Please find attached QUOTATION - 417479 from Garricks Camera House

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Date : 14/12/2018 10:31:54 AM

From : "BURKE Steve"

To : "JEFFERIS Celia"

Subject : RE: Rise Above Tax Invoice #N60101

Attachment : image001.png;image003.png;image004.jpg;image005.jpg;image006.png;image007.jpg;

Thanks Celia



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

(07) 49915162 | (6) Personal info | steve.burke@des.qld.gov.au

1s |  oves Drive Yeppoon QLD 4703
PO oon QLD 4703

Vis : www.des.qld.gov.au

From: JEFFERIS Celia

Sent: Friday, 14 December 2018 10:30 AM

To: BURKE Steve

Subject: FW: Rise Above Tax Invoice #N60101

FYI

From: CHAPMAN Felicity

Sent: Wednesday, 10 October 2018 9:57 AM

To: JEFFERIS Celia <Celia.Jefferis@des.qld.gov.au>

Subject: FW: Rise Above Tax Invoice #N60101

Celia

This is the backpack we received – cannot fit our drone in it (DJI Phantom 4 Pro V2).

When you have time can you please ask Rise Above about a carry case for our drone.

No rush.

Felicity



Felicity Chapman

Senior Conservation Officer Technical Support
Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife
Service
Department of Environment and Science

P 07 4971 6521 M (6) Personal info
Level 2 20-22 Herbert Street Gladstone Qld 4680
PO Box 5065 Gladstone Qld 4680

My normal work week is Tuesday to Friday

From: (6) Personal info <[riseabove.com.au](mailto:(6) Personal info@riseabove.com.au)>

Sent: Wednesday, 3 October 2018 12:40 PM

To: CHAPMAN Felicity

Subject: Rise Above Tax Invoice #N60101

ABN: 22 168 957 499
PH: 02 4647 3450

SHIP TO:

Tel: 49 716519

SOLD TO:

Felicity Chapman

Tax Invoice

INVOICE #: N60101

Date Placed: 03/10/2018

Date Invoiced: 03/10/2018

Paid

Felicity Chapman
Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

Level 2 20-22 Herbert Street
GLADSTONE, QLD 4680
Australia

QTY	NAME
1	DJI Phantom Series Backpack (Open Box Demo, unused)

UNIT PRICE	TAX	SUBTOTAL
------------	-----	----------

sch4p4(7)(1)(c) Business/commercial/professional/financial affairs

ORDER PAYMENT HISTORY

DATE	PAYMENT METHOD
03/10/2018	Master Card
03/10/2018	Master Card

AMOUNT PAID

\$164.11

\$18.21

Total Amount Paid:

\$182.32

Direct Bank Deposit or Internet Transfer

Send To: Rise Above Aerial Cinematography
Commonwealth Bank of Australia
BSB: 062-185 Ac/No. 10731227

Please leave your order/invoice number as a payment reference. Once you have deposited the full amount, please email a copy of the payment confirmation to sales@riseabove.com.au.

Credit Card - By Phone

Master Card or Visa
Please call (02) 4647 3450 to pay by credit card.

Paypal

Send payment to sales@riseabove.com.au with your invoice number as your reference.

Please note all prices are shown in AUD

By proceeding with this order, you acknowledge that you have read and agree to the terms and conditions located on www.riseabove.com.au/terms-of-use

Rise Above Aerials - 2/40 Dunn Rd. Smeaton Grange NSW 2567

Date : 25/09/2018 1:57:51 PM
From : "HURREN Kerry-Anne"
To : "HALEY Gemma"

Subject : RE: drone training

Attachment : image001.png;image002.png;image005.png;

Thanks heaps for this Gemma. Let me know how you go with the number of spaces available if you actually get through.

Thank you,
K-A



Kerry-Anne Hurren
A/Ranger in Charge (Natural Resource Management)
Great Barrier Reef & Marine Parks | QLD Parks & Wildlife Service
Department of Environment & Science

M (6) Personal info E Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

From: HALEY Gemma
Sent: Tuesday, 25 September 2018 1:46 PM
To: HURREN Kerry-Anne
Subject: drone training

Hi K-A

It appears there is only one drone training provider that has an upcoming course in Cairns. The only course that is scheduled before the end of the year is through Ace Aviation 15-19th Oct 2018. The price for the 5 day face to face course is \$2295. There is also a self-study online option with only 2 days face to face for \$1295 – I have not confirmed if there are any dates for this yet. Tried to call the number to confirm if any available spaces on the course but it just keeps hanging up on me. Will keep at it.

Further info on their website <https://aceaviation.com.au/>

Cheers
Gem



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

Date : 27/09/2018 11:56:04 AM
From : "HURREN Kerry-Anne"
To : "HALEY Gemma"
Subject : RE: drone training
Attachment : image001.png;image003.png;image004.png;
Hey Gem,

Was this one for 25kg drone? I'm guessing so...



Kerry-Anne Hurren
A/Senior Ranger
Great Barrier Reef & Marine Parks I QLD Parks & Wildlife Service
Department of Environment & Science

M: 6) Personal info E Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

From: HALEY Gemma
Sent: Tuesday, 25 September 2018 1:46 PM
To: HURREN Kerry-Anne
Subject: drone training

Hi K-A

It appears there is only one drone training provider that has an upcoming course in Cairns. The only course that is scheduled before the end of the year is through Ace Aviation 15-19th Oct 2018. The price for the 5 day face to face course is \$2295. There is also a self-study online option with only 2 days face to face for \$1295 – I have not confirmed if there are any dates for this yet. Tried to call the number to confirm if any available spaces on the course but it just keeps hanging up on me. Will keep at it.

Further info on their website <https://aceaviation.com.au/>

Cheers
Gem



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

Date : 8/10/2018 3:28:33 PM

From : "HALEY Gemma"

To : [REDACTED] p4(6) Personal inform

Subject : RE: RePL training Cairns 15-19 Oct 2018

Attachment : image001.png;image004.png;image006.png;image007.png;

Hi [REDACTED] ersona

Thanks for sending through the quote below. I have discussed with my supervisor and unfortunately we will not be able to proceed with the quote at the present time due to budget restraints.

I will let you know if we would like any other quotes in the future.

Thanks for your time.

Cheers

Gemma



Gemma Haley

Ranger

Queensland Parks and Wildlife Service

Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4047 9651

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.des.qld.gov.au

From: [REDACTED] ch4p4(6) Personal information@aceaviation.com.au>

Sent: Thursday, 4 October 2018 1:25 PM

To: HALEY Gemma

Subject: RE: RePL training Cairns 15-19 Oct 2018

Gemma

Thanks for your enquiry and time on the phone.

As discussed, we'll be able to complete Remote Pilot Licence (RePL) training either onsite at your training DES room at Tingira St, or at JCU in Smithfield.

Currently, we have a training course scheduled for Cairns on Monday 15th – Friday 19th. The classes typically run 9am – 5pm, with approx. 3 days of aviation theory and two days of practical flying under instruction, plus some examinations.

If these dates are not available, we can be flexible with your team's availability.

In regards to the 25kg Heavy Lift Multi-Rotor endorsement, we can complete this training as part of the 5 day course by integrating it into the field training. We supply all training drones and equipment required.

All of our courses come with a free refresher option, so if at any stage in the future there's some gap training required, you can sit in our classes free of charge.

Check out our course details page here: <https://aceaviation.com.au/our-courses/repl/>

Our standard pricing is:

RePL (5 day course)

25kg Heavy Lift Multi-Rotor Endorsement

total per student

We'd love to build a long-term relationship with DES in Cairns, so I can offer you the following:

[REDACTED] per student (based on a class of 5 – 6 students). That's a discount of [REDACTED] per student.

Gemma, here's a quick video for the training we did for the SA SES recently <https://www.facebook.com/AA360/videos/468576816902963/>

Additionally, it would be great to have an understanding of the types of operations you will be conducting. I'm sure we can value add to the training by including content which is complementary to your operational requirements. Coupled with this, we also can familiarise the students with conducting operations with you drone of choice.

Let me know if you have any questions regarding the above. We'll only be too pleased to accommodate your requirements!

Kind regards



From: HALEY Gemma <Gemma.Haley@des.qld.gov.au>
Sent: Tuesday, 25 September 2018 3:16 PM
To: Ace Aviation Information <info@aceaviation.com.au>
Subject: RePL training Cairns 15-19 Oct 2018

Hi

Are there any spaces available in the Cairns RePL training program scheduled for the 15-19 Oct? I have a few other questions about the training. Can someone please give me a call on 07 4047 9651 I have tried the hotline number but have been unable to get through.

Thanks
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9651
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

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Date : 9/10/2018 10:45:09 AM

From : 4p4(6) Personal informa

To : "HALEY Gemma"

Subject : RE: RePL training Cairns 15-19 Oct 2018

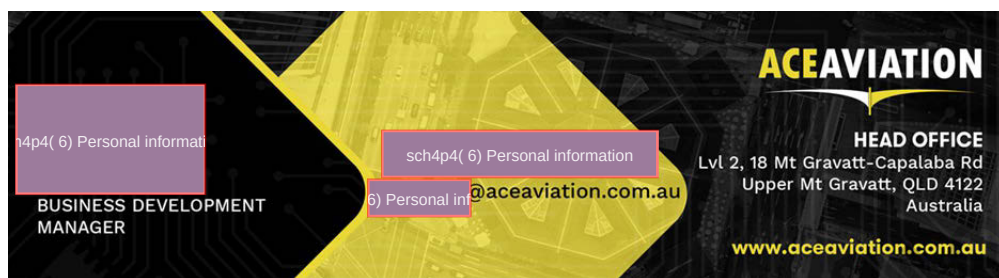
Attachment : image003.png;image006.png;image001.png;image004.png;image007.png;
Gemma

No problem at all.

We're happy to work with you when your budget allows.

Please get in contact with me when you can consider the RePL training.

Kind regards



From: HALEY Gemma <Gemma.Haley@des.qld.gov.au>

Sent: Monday, 8 October 2018 4:29 PM

To: sch4p4(6) Personal information@aceaviation.com.au>

Subject: RE: RePL training Cairns 15-19 Oct 2018

Hi Personal

Thanks for sending through the quote below. I have discussed with my supervisor and unfortunately we will not be able to proceed with the quote at the present time due to budget restraints.

I will let you know if we would like any other quotes in the future.

Thanks for your time.

Cheers
Gemma



Gemma Haley

Ranger

Queensland Parks and Wildlife Service

Great Barrier Reef and Marine Parks Region

Department of Environment and Science

P 07 4047 9651

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.des.qld.gov.au

From: sch4p4(6) Personal information@aceaviation.com.au>

Sent: Thursday, 4 October 2018 1:25 PM

To: HALEY Gemma

Subject: RE: RePL training Cairns 15-19 Oct 2018

Gemma

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Our standard pricing is:

commercial	RePL (5 day course)
	25kg Heavy Lift Multi-Rotor Endorsement
	Total per student

We'd love to build a long-term relationship with DES in Cairns, so I can offer you the following:

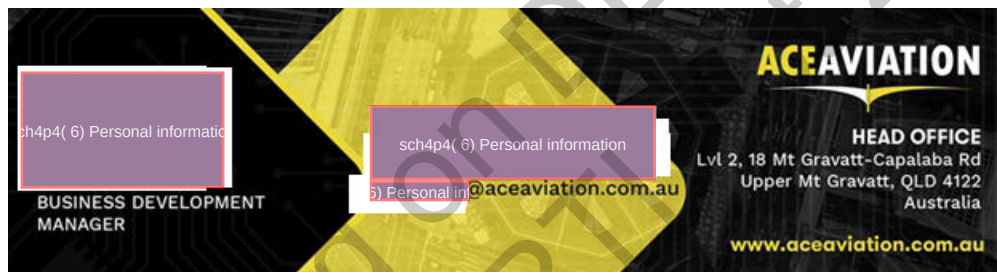
commercial per student (based on a class of 5 - 6 students). That's a discount of commercial per student.

Gemma, here's a quick video for the training we did for the SA SES recently <https://www.facebook.com/AA360/videos/468576816902963/>

Additionally, it would be great to have an understanding of the types of operations you will be conducting. I'm sure we can value add to the training by including content which is complementary to your operational requirements. Coupled with this, we also can familiarise the students with conducting operations with your drone of choice.

Let me know if you have any questions regarding the above. We'll only be too pleased to accommodate your requirements!

Kind regards



From: HALEY Gemma <Gemma.Haley@des.qld.gov.au>
Sent: Tuesday, 25 September 2018 3:16 PM
To: Ace Aviation Information <info@aceaviation.com.au>
Subject: RePL training Cairns 15-19 Oct 2018

Hi

Are there any spaces available in the Cairns RePL training program scheduled for the 15-19 Oct? I have a few other questions about the training. Can someone please give me a call on 07 4047 9651 I have tried the hotline number but have been unable to get through.

Thanks
Gemma



Gemma Haley
Ranger
Queensland Parks and Wildlife Service
Great Barrier Reef and Marine Parks Region
Department of Environment and Science

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100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.des.qld.gov.au

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RTI Act 2009

Date : 20/06/2018 11:54:50 AM

From : "DUNSTAN Andrew"

To : "HEMSON Graham"

Subject : RE: acoustic stations

Attachment : image001.png;image002.png;image005.png;image007.png;image008.png;

Off to Raine tomorrow morn though!

From: HEMSON Graham

Sent: Wednesday, 20 June 2018 9:40 AM

To: DUNSTAN Andrew

Subject: RE: acoustic stations

Export to iPads....I'll call in the next couple of days!



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Wednesday, 20 June 2018 9:25 AM

To: HEMSON Graham

Subject: RE: acoustic stations

Free DJI app and very easy to use and program flight paths. \$80 extra if you want to be able to export flight paths to other devices which is what I have

From: HEMSON Graham

Sent: Wednesday, 20 June 2018 9:04 AM

To: DUNSTAN Andrew

Subject: RE: acoustic stations

Never heard of it...till now....how much is Ground Station?



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Wednesday, 20 June 2018 8:48 AM

To: HEMSON Graham

Subject: RE: acoustic stations

No worries fella. We'll set up now with autopilot but Jeff will program in some orbit flight paths in Google so that we can then use them in DJI Ground Station so it can all be on one software platform and also be useable on android tablets if necessary.

Work hard!!!

From: HEMSON Graham

Sent: Tuesday, 19 June 2018 7:00 PM

To: DUNSTAN Andrew

Subject: RE: acoustic stations

Sorry massively under the pump at the moment not being deliberately short and rude. What software are you using for the orbits? Autopilot?

From: DUNSTAN Andrew

Sent: Tuesday, 19 June 2018 4:35 PM

To: HEMSON Graham

Subject: RE: acoustic stations

No worries, we'll do dGPS locations and set up standard orbit flight paths while we're there.

From: HEMSON Graham

Sent: Tuesday, 19 June 2018 11:36 AM

To: DUNSTAN Andrew

Subject: RE: acoustic stations
19-211

I don't have any locations since the units were finally placed.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Friday, 15 June 2018 11:19 AM

To: HEMSON Graham

Subject: acoustic stations

Hi Graham, wondering if you have the latest dGPS locations for acoustic stations and can send them through to program into drone flight software please. I have a set of locations but just want to double check.



Dr Andy Dunstan

Senior Conservation Officer
Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

P (6) Personal info
Level 5, 400 George St, Brisbane, QLD 4000
www.npsr.qld.gov.au/raineisland

Date : 4/05/2018 2:44:24 PM

From : "ALDERSON Tina"

To : "HEMSON Graham"

Subject : RE: airpower

Attachment : image001.png;image003.png;image005.png;

Not sure yet – think some hands on training will be needed – going to get andy to write something up in conjunction with Ben Sol.. (as he has his CASA licence) – what we absolutely don't want is it being crashed by learners – Damien will never let us get another one if it dies quickly ! I am wondering if there is some kind of on line simulator you can train on !! or does that sound a bit flash !!

Tina

From: HEMSON Graham

Sent: Friday, 4 May 2018 2:42 PM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Subject: RE: airpower

How are we defining competency....I rarely reach such dizzying heights in any aspect of my life.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ALDERSON Tina

Sent: Friday, 4 May 2018 2:41 PM

To: HEMSON Graham

Subject: RE: airpower

No – we (as in the Raine Island Project) are 'leasing' it from marine parks (Dan S really) – they will own it and we will lease it – pretty much for what it cost over 2 years. Deal will be that it mainly lives on Reef Ranger and must be available for Raine trips. Only flown by competent 'trained' staff under certain conditions etc.

So yes you may be able to 'lend' it if you guys meet these requirements !!!

Tina

From: HEMSON Graham

Sent: Friday, 4 May 2018 2:38 PM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Subject: RE: airpower

Oh lease not lend, what are your rates and how are you proposing to transport and what conditions?



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 4(6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ALDERSON Tina

Sent: Friday, 4 May 2018 2:24 PM

To: HEMSON Graham

Subject: RE: airpower

So many q's !!

Currently buying one – literally finalising the RFQ now

Details are:

DJI-M200-DRONE DJI Matrice 200 (M200) Commercial/Industrial Drone
DJI-ZEN-X5S-NOLENS DJI Zenmuse X5S Gimbal and Camera Unit (Lens Excluded) Part 1
Olympus ES-M2518 M.Zuiko Premium 17mm f1.8 Standard Zoom Lens
DJI-X5S-BAL-OLYM-12MM-P6 DJI Zenmuse X5S Balancing Ring for Olympus 17mm F/1.8 Lens
DJI-X5S-BAL-OLYM-45MM-P4 DJI Zenmuse X5S Balancing Ring for Olympus 45mm F/1.8 Lens
Olympus ET-M4518 M.Zuiko Digital 45mm f1.8 Portrait Lens
2 x DJI-INSPIRE2-CHRGHUB-P8 DJI Inspire 2 Intelligent Flight Battery Charging Hub - Part 08
6 x DJI-M200-TB55-BATT DJI Matrice 200/210 Series TB55 Extended Battery
Waterproof case

Price – approx. 17-18K

And yes – it will technically be marine parks and we will lease it

Tina

From: HEMSON Graham
Sent: Friday, 4 May 2018 2:21 PM
To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Subject: airpower

Did you buy a drone?

Which one?

How much?

Plans to lend?



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (b) (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

Date : 16/04/2018 8:55:44 AM
From : "DUNSTAN Andrew"
To : "HEMSON Graham", "ALDERSON Tina", "ROBERTSON Katharine", "SCHAPER Dan", "HEAD Damien"
Subject : RE: Drone purchase
Attachment : image001.png;image002.png;image004.png;

I think that's right too Graham and there is an option to buy a 12-42 zoom lens to try a few variations on the theme. Higher f value but probably not such an issue given the available light during surveys? What do you think. It may be worth buying this as well rather than instead of other lenses

From: HEMSON Graham
Sent: Monday, 16 April 2018 8:46 AM
To: ALDERSON Tina; DUNSTAN Andrew; ROBERTSON Katharine; HEAD Damien; SCHAPER Dan
Subject: RE: Drone purchase

Only suggestion I'd make is that I'd like to see us using a range of lenses for seabirds and that we might even want to use the 45mm lens, particularly if we start looking at sampling rather than or as calibration of entire island flights. What I mean by this is that the resolution you'll get from a 17mm lens (1.2cm/pixel) is better than the Phantom 4 lenses (1.6cm/pixel) but may not be enough to identify all birds species. We may need imagery from higher zoom lenses. However this may preclude us from surveying the entire island so we might sample smaller areas at really high resolution and extrapolate or use these data to inform our imagery at lower resolutions.



Graham Hemson PhD
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.
P 07 4936 0113 M Personal
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ALDERSON Tina
Sent: Wednesday, 11 April 2018 9:32 AM
To: DUNSTAN Andrew; ROBERTSON Katharine; HEMSON Graham; HEAD Damien; SCHAPER Dan
Subject: RE: Drone purchase

Thanks Andy
Next step after any comments is we will need to do the VRA and ROPA A this week and get it looked at by Julie and endorsed
Tina

From: DUNSTAN Andrew
Sent: Wednesday, 11 April 2018 9:28 AM
To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; HEMSON Graham <Graham.Hemson@des.qld.gov.au>; HEAD Damien <Damien.Head@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>
Subject: Drone purchase

Hi all

Here is a bit of a summary of the recommendations for drone purchase with the key criteria. Hope this provides the necessary info for ROPA and purchase. Supply should not take more than 4 weeks and should be included into the ROPA to ensure we have all components in time for the June Raine trip to set up programmed flight paths and drone and camera settings and provide training for at least Andy, Katharine and Graham but also others likely to be involved in RIRP and other QPWS projects. Maybe we could have an on-ground day in Cairns with Richard Fitzpatrick (or whoever is identified to program drone and train staff and join June Raine trip) the day prior to the Raine trip to include more QPWS staff as a preliminary training day?

Overall:

- Matrice 210 has the ability to carry two camera eg. Normal plus thermal or hyperspectral and is professional level but still pre-programmable for QPWS staff ease of use
- Matrice X5 camera is recommended as it has the ability for interchangeable lenses for different applications
- Extended life batteries are more expensive but reduce number of flights, charging time and increase efficiency where time is the limiting factor. Drone takes 2 batteries at a time so 6 batteries will provide 3 flights and time to charge.
- Waterproof carry case is recommended

For Seabirds:

- Matrice X5 camera and 17mm lens for higher resolution (see table below for camera/lens and flight height combinations and resolution)
- More flights or selected colonies/flight paths as area covered will be less than topo surveys

For topographic mapping the key requirements are:

- Rectification of image data to dGPS accuracy requiring ground control points. Even with an RTK dGPS model Matrice 210 (\$10,000 extra) we would still need to place ground control points around the berm. It takes very little extra time to place other ground control points so this is not a realistic extra value.
- Better than 10cm/pixel resolution but ideally around 2cm
- Wider angle (45mm lens) is better to cover more area and require less flight time.

For painted turtle surveys:

- Wide angle (45mm lens) is best for maximum coverage and minimum flight time
- suitable resolution (better than 2cm/ pixel)

For night turtle surveys:

- not in this budget but Damien is keen to explore this.
- Recommendation is Zenmuse XT non-radiographic thermal/infrared/RGB camera which combines normal and thermal images to provide a combined best overall image, 640 image size/resolution, 30Hz video speed and 13mm lens - estimate \$15 -20k.

Drone	Lens 35mm equivalent	Sensor Effective Pixels	Height in m	Horizontal Swathe	Vertical Swathe	effective horizontal resolution in cm/pixel	effective vertical resolution in cm/pixel
Inspire 2/Matrice X4S	24mm	19961856	60 m	90 m	60 m	1.64 cm/pixel	1.64 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 12mm)	24mm	23799296	60 m	90 m	60 m	1.5 cm/pixel	1.51 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 12mm)	24mm	23799296	70 m	105 m	70 m	1.75 cm/pixel	1.76 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 12mm)	24mm	23799296	80 m	121 m	80 m	2. cm/pixel	2.02 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 17mm)	34mm	23799296	60 m	62 m	41 m	1.03 cm/pixel	1.04 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 17mm)	34mm	23799296	70 m	72 m	48 m	1.2 cm/pixel	1.21 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 17mm)	34mm	23799296	80 m	82 m	55 m	1.37 cm/pixel	1.38 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 25mm/1.8)	50mm	23799296	60 m	43 m	29 m	.72 cm/pixel	.73 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 25mm/1.8)	50mm	23799296	70 m	50 m	34 m	.84 cm/pixel	.85 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 25mm/1.8)	50mm	23799296	80 m	58 m	38 m	.96 cm/pixel	.97 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 45mm/1.8)	90mm	23799296	60 m	25 m	17 m	.42 cm/pixel	.43 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 45mm/1.8)	90mm	23799296	70 m	30 m	20 m	.49 cm/pixel	.5 cm/pixel
Inspire 2/Matrice X5S (Olympus M.Zuiko 45mm/1.8)	90mm	23799296	80 m	34 m	23 m	.56 cm/pixel	.57 cm/pixel

Recommended purchase items and quoted prices from Rise Above Drone provider company.

QTY	NAME	SUBTOTAL
1	DJI-M210-DRONE DJI Matrice 210 (M210) Commercial/Industrial Drone	commercial/p
1	DJI-ZEN-X5S-NOLENS DJI Zenmuse X5S Gimbal and Camera Unit (Lens Excluded) Part 1	
1	CUSTOM_LINE_ITEM Olympus ES-M2518 M.Zuiko Premium 17mm f1.8 Standard Zoom Lens	
1	DJI-X5S-BAL-OLYM-12MM-P6 DJI Zenmuse X5S Balancing Ring for Olympus 17mm F/1.8 Lens	
1	DJI-X5S-BAL-OLYM-45MM-P4 DJI Zenmuse X5S Balancing Ring for Olympus 45mm F/1.8 Lens	
1	CUSTOM_LINE_ITEM Olympus ET-M4518 M.Zuiko Digital 45mm f1.8 Portrait Lens	
2	DJI-INSP2-CHRGHUB-P8 DJI Inspire 2 Intelligent Flight Battery Charging Hub - Part 08	
6	DJI-M200-TB55-BATT DJI Matrice 200/210 Series TB55 Extended Battery	
1	Waterproof case	
	Shipped Via: Pickup Shipping Cost:	
	Grand Total:	\$20,353.05



Dr Andy Dunstan
Senior Conservation Officer
Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

Personal
Level 5, 400 George St, Brisbane, QLD 4000
www.npsr.qld.gov.au/raineisland

Published on DES Disclosure Log
RTI Act 2009

Date : 19/10/2018 1:55:47 PM

From : "HEMSON Graham"

To : "ARMSTRONG Bridget"

Subject : RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Attachment :

image001.png;image016.png;image002.png;image003.png;image007.png;image008.png;image010.png;image011.png;image015.png;
Understood, you could talk to Mike Harte and Damon who used the drone specifically for pig damage at Curtis.

From: ARMSTRONG Bridget

Sent: Friday, 19 October 2018 1:44 PM

To: HEMSON Graham

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Just heard that from that the chap working on the mangroves is Arnon Accad – the one who requested the drone survey in the first place..

I am confident that it would be a valuable thing to do, but the MU will need serious convincing to provide resources.

Bridget Armstrong

A/Assistant PR: Technical Support

Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife

Department of Environment and Science

P 07 40479652 M (6) Personal info

From: ARMSTRONG Bridget

Sent: Friday, 19 October 2018 1:39 PM

To: HEMSON Graham <Graham.Hemson@des.qld.gov.au>

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

It could be useful for mapping changes in extent, and species differences, but not really useful for looking for pests, diseases, pig damage etc.

And I think that TropWatch are already monitoring the Hinchinbrook mangroves - we need to get clarity on that.

But using drones to monitor the high elevation heath and rainforest key values may be a great application

Bridget Armstrong

A/Assistant PR: Technical Support

Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife

Department of Environment and Science

P 07 40479652 M (6) Personal info

From: HEMSON Graham

Sent: Friday, 19 October 2018 12:09 PM

To: ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>

Cc: LOW Jesse <Jesse.Low@des.qld.gov.au>

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Well this really comes down to whether the drone could be used instead of the Health Check in future? Any thoughts?

From: ARMSTRONG Bridget

Sent: Friday, 19 October 2018 11:44 AM

To: HEMSON Graham

Cc: LOW Jesse

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

The mangrove ecosystem is a key value on Hinchinbrook - about 20% of the extent was flattened by Yasi and is still under recovery. See attached Health Check FYI.

Patrick (the RIC) mentioned that there is a draft research paper available – I can't track it down but clearly someone is monitoring the recovery.

Just chatted to Hayden and he is concerned about needing to provide vessels or staff, as they are so stretched at the moment.

From my position, I think it's a great idea, but I do understand that for ops it may be a hard sell.

cheers

Bridget Armstrong

A/Assistant PR: Technical Support

Great Barrier Reef & Marine Parks Region | Queensland Parks and Wildlife

Department of Environment and Science

P 07 40479652 M (6) Personal info

From: HEMSON Graham
Sent: Wednesday, 17 October 2018 12:53 PM
To: ORCHARD Richard <Richard.Orchard@des.qld.gov.au>
Cc: LOW Jesse <Jesse.Low@des.qld.gov.au>; ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>; DYBALL Alan <Alan.Dyball@des.qld.gov.au>
Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Thanks Richard and noted. I'll keep you in the loop



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ORCHARD Richard
Sent: Wednesday, 17 October 2018 12:15 PM
To: HEMSON Graham
Cc: LOW Jesse; ARMSTRONG Bridget; DYBALL Alan
Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Hi Graham,
I believe this is a good idea and we have worked with the herbarium on mangroves before.

Not a simple go ahead as MBMP has a requirement for a permit for aircraft operation (including drones) within the MP.

I would be happy to assist with this proposal.

Richard.



Richard Orchard

Senior Ranger
Queensland Parks and Wildlife Service | Great Barrier Reef Region
Department of Environment and Science

P 07 31012090
34 Trafalgar Street, Manly, 4179
PO Box 5178, Manly, 4179

From: DYBALL Alan
Sent: Wednesday, 17 October 2018 10:57 AM
To: HEMSON Graham <Graham.Hemson@des.qld.gov.au>; LOW Jesse <Jesse.Low@des.qld.gov.au>; ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>; ORCHARD Richard <Richard.Orchard@des.qld.gov.au>
Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Thanks Graham,

- Not a priority for operations so would need to be implemented by others.
- Happy to help enable others to do.
- Always happy for Government drones to be in the air; it generates good rumour and threat that compliance is being implemented via drone surveillance.

Senior Ranger Richard Orchard is the best contact for any potential project meetings/further discussions re; MBMP.

Cheers

A



Alan Dyball

Principal Ranger – Southern Queensland
Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service
Department of Environment and Science

Ph 07 4197 4002
PO Box 7626, Urangan, Qld 4655

From: HEMSON Graham
Sent: Wednesday, 17 October 2018 10:21 AM
19-211

To: LOW Jesse <Jesse.Low@des.qld.gov.au>; ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>; DYBALL Alan <Alan.Dyball@des.qld.gov.au>

Subject: FW: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Folks,

Our colleagues in the Herbarium and Spatial Services are interested in monitoring mangroves with drones. They are setting up a meeting to open discussion and note that Nth Qld and Moreton are the proposed sites. Ecological Assessment has a drone, there's the drone procured for Raine but for the entire region to use and the Moreton drone.

I can take part in initial discussion unless someone else wants to hop in. My current thoughts are

- Interesting but may not be a priority unless mangroves are a key value in State Marine Parks
- Scope the ask before jumping in
- Fits broadly with the technology adoption remit

Nominations and thoughts?



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: MELZER Rhonda

Sent: Tuesday, 16 October 2018 5:02 PM

To: OLYOTT Leonard; MCDOUGALL Andrew (Rockhampton)

Cc: HEMSON Graham; OLDS John; ARMSTRONG Bridget

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Hi Len
Arnon is very keen and has already rung me and asked us to organise a teleconference to discuss further!
Andrew can I ask you to do the latter please (check with GH and Len who needs to be included from their end). Arnon is: "OK for the rest of this week and 24th and 26th next week."

Regards
R



Dr Rhonda Melzer

Manager Ecological Assessment Unit
Technical Services, Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4936 0552
61 Yeppoon Road, Parkhurst
PO Box 3130 Red Hill, Rockhampton, Qld 4701

From: OLYOTT Leonard

Sent: Tuesday, 16 October 2018 3:37 PM

To: MELZER Rhonda <Rhonda.Melzer@des.qld.gov.au>

Cc: HEMSON Graham <Graham.Hemson@des.qld.gov.au>; OLDS John <John.Olds@des.qld.gov.au>; MCDOUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>; ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Excellent

I will reach out to Arnon and see how he would like to progress.

Kind Regards
Len



Len Olyott

A/Manager, Spatial Services
Technical Services | Park Services | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 3199 7312
(6) Personal info
Level 5, 400 George St, Brisbane QLD 4000
Visit Spatial Services: <http://portal/nprsr/rb/corporatesupport/spatial-services>

From: MELZER Rhonda

Sent: Tuesday, 16 October 2018 1:09 PM

To: OLYOTT Leonard

Cc: HEMSON Graham; OLDS John; MCDUGALL Andrew (Rockhampton); ARMSTRONG Bridget

Subject: RE: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Hi Len

Thanks heaps for thinking of us. Yes we are interested to discuss further.

Regards

R



Dr Rhonda Melzer
Manager Ecological Assessment Unit
Technical Services, Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4936 0552
61 Yeppoon Road, Parkhurst
PO Box 3130 Red Hill, Rockhampton, Qld 4701

From: OLYOTT Leonard

Sent: Tuesday, 16 October 2018 12:13 PM

To: MELZER Rhonda <Rhonda.Melzer@des.qld.gov.au>

Subject: FW: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Hi Rhonda

This request came through from Arnon Accad from the Herbarium. It may well be something that is coordinated at a regional level but I think there is possibly interest from our Spatial Services team as well as Ecological Assessment maybe? I think it ticks a few boxes:

- Collaboration with rest of DES
- Innovation
- Science

Kind Regards

Len



Len Olyott
A/Manager, Spatial Services
Technical Services | Park Services | Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 3199 7312
M [6](#) Personal info
Level 5, 400 George St, Brisbane QLD 4000
Visit Spatial Services: <http://portal/nprsr/rb/corporatesupport/spatial-services>

From: ACCAD Arnon

Sent: Wednesday, 5 September 2018 3:49 PM

To: OLYOTT Leonard

Subject: Drone to support monitoring and assessment of the recovery of Mangrove in Hinchinbrook Island National Park following Yasi

Hi Leo,

As discusses it is now almost 7 years post Yasi and I don't know of anyone is monitoring on the ground the potential recovery of the Mangroves that were killed during Yasi.

Low flying Drone transect can provide for monitoring and understanding the recovery and species.

Can you please discuss this with the QPWS drone operators and see if we can collaborate establishing a Drone monitoring system.

We can test this approach here in Moreton Bay before deploying to the Far North Queensland.

Please advise.

Cheers Arnon



Dr Arnon Accad
Principal Scientist
Queensland Herbarium | Science Delivery
Department of Environment and Science

P 07 3896 9435 M [6](#) Personal info F 07 3896 9624
Brisbane Botanic Gardens, Mt Coot-tha Road, TOOWONG QLD 4066
<http://www.qld.gov.au/environment/plants-animals/plants/herbarium/>

Date : 29/05/2018 10:39:49 AM

From : "ALDERSON Tina"

To : "MCDOUGALL Andrew (Rockhampton)" , "ARMSTRONG Warrick" , "BRADSHAW Steven" , "SCHAPER Dan" , "HESS Lee" , "ROBERTSON Katharine" , "SOLOWIEJ Ben"

Cc : "HEMSON Graham" , "DUNSTAN Andrew" , "HENRY Linden"

Subject : RE: Drone training

Attachment : image001.png;image002.png;

Re training – most of this time will be setting up the drone flight paths etc with Richard.

The actual hands on training will be on Tues 19th of June at JCU Smithfield from about 12.30-5pm.

Please advise who will be coming – not expecting a cast of thousands but a select few as people need to have a hands on go with it
If the weather is too windy windy then it will be called off – fingers crossed

Tina

From: ALDERSON Tina

Sent: Friday, 25 May 2018 2:57 PM

To: MCDOUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>; ARMSTRONG Warrick <Warrick.Armstrong@des.qld.gov.au>; BRADSHAW Steven <Steven.Bradshaw@des.qld.gov.au>

Subject: FW: Drone training

fyi

From: DUNSTAN Andrew

Sent: Thursday, 24 May 2018 3:50 PM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>; Richard Fitzpatrick (<richard.fitzpatrick@biopixel.tv> <richard.fitzpatrick@biopixel.tv>

Subject: Drone training

Hi guys

Richard Fitzpatrick is unavailable to go on the next Raine trip and conduct drone training on site.

He is however able to pre-program the drone with all flight paths and conduct a full setup on Mon 18th June followed by further setup and operator training on Tues 19th and Wed 20th in Cairns at JCU grounds. I think this sounds like a good plan in preparation for departure to Raine on Thurs 21st June.

There will be no cost for this training (just checking Richard?).

Any thoughts.

Cheers

Andy



Dr Andy Dunstan

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P6) Personal info

Level 5, 400 George St, Brisbane, QLD 4000

www.npsr.qld.gov.au/raineisland

Date : 25/05/2018 10:10:03 AM

From : "HARTE Michael"

To : "HEMSON Graham"

Cc : "SHEARER Damon"

Subject : RE: Drone2Map software

Attachment : image001.png;image002.png;

Thanks – that should take care of three days of flying, I guess.

Cheers,

Mike



Michael Harte

Senior Spatial Information Analyst

Spatial Services | Tech Ops

Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 4936 0591

61 Yeppoon Road, Parkhurst, QLD 4702

PO Box 3130, Red Hill, Rockhampton, QLD 4701

From: HEMSON Graham

Sent: Friday, 25 May 2018 9:45 AM

To: HARTE Michael <Michael.Harte@des.qld.gov.au>

Cc: SHEARER Damon <Damon.Shearer@des.qld.gov.au>

Subject: Re: Drone2Map software

There are at least three or maybe four in there already

Sent from my iPhone

On 25 May 2018, at 9:15 am, HARTE Michael <Michael.Harte@des.qld.gov.au> wrote:

There is one in the backpack.

Graham, would it be a good idea to get our hands on an additional memory card or two? What specs?

Cheers,

Mike

<image002.png>**Michael Harte**

Senior Spatial Information Analyst

Spatial Services | Tech Ops

Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 4936 0591

61 Yeppoon Road, Parkhurst, QLD 4702

PO Box 3130, Red Hill, Rockhampton, QLD 4701

From: SHEARER Damon

Sent: Friday, 25 May 2018 9:10 AM

To: HARTE Michael <Michael.Harte@des.qld.gov.au>

Subject: RE: Drone2Map software

Do I need to get some memory cards for the drone?

From: HARTE Michael

Sent: Friday, 25 May 2018 8:51 AM

To: SHEARER Damon <Damon.Shearer@des.qld.gov.au>

Subject: RE: Drone2Map software

I'll see what I might be able to dig up as a loaner around here.

Cheers,

Mike

<image002.png>**Michael Harte**

Senior Spatial Information Analyst

Spatial Services | Tech Ops

Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 4936 0591

61 Yeppoon Road, Parkhurst, QLD 4702

PO Box 3130, Red Hill, Rockhampton, QLD 4701

From: SHEARER Damon
Sent: Friday, 25 May 2018 8:34 AM
To: HARTE Michael <Michael.Harte@des.qld.gov.au>
Subject: RE: Drone2Map software

No it's a 32-bit bugger!

From: HARTE Michael
Sent: Thursday, 24 May 2018 4:16 PM
To: SHEARER Damon <Damon.Shearer@des.qld.gov.au>
Subject: RE: Drone2Map software

Dongle is great.

To tell if you have a 64 bit machine go to:

Start
Control Panel
System

On that page under "System", the "System Type" will say 32-bit or 64-bit.

Cheers,
Mike

<image005.png>**Michael Harte**
Senior Spatial Information Analyst
Spatial Services | Tech Ops
Queensland Parks and Wildlife Service
Department of Environment and Science
P 07 4936 0591
61 Yeppoon Road, Parkhurst, QLD 4702
PO Box 3130, Red Hill, Rockhampton, QLD 4701

From: SHEARER Damon
Sent: Thursday, 24 May 2018 1:19 PM
To: HARTE Michael <Michael.Harte@des.qld.gov.au>
Subject: RE: Drone2Map software

I have a Dell Latitude E7470. It that 64 bit?
I have access to a Telstra dongle for the week.

From: HARTE Michael
Sent: Tuesday, 22 May 2018 2:57 PM
To: SHEARER Damon <Damon.Shearer@des.qld.gov.au>
Subject: Drone2Map software

Damon,

I've got the details for logging in to use the 'Drone2Map' software. I've installed it on my desktop from the Software Center, but it requires a 64 bit processor/Windows install and my laptop is 32 bit.

If you can get your hands on a 64 bit laptop for the trip you should be able to install Drone2Map from the Software Center. If it is not there for you Marcus Toyne said a request to ITP should get it in your Software Center in a day or two.

As long as we have a wireless internet dongle we can then check out the drone imagery at the end of the day.

Cheers,
Mike

<image007.png>**Michael Harte**
Senior Spatial Information Analyst
Spatial Services | Tech Ops
Queensland Parks and Wildlife Service
Department of Environment and Science
P 07 4936 0591
61 Yeppoon Road, Parkhurst, QLD 4702
PO Box 3130, Red Hill, Rockhampton, QLD 4701

Date : 17/05/2018 4:16:56 PM

From : "HEMSON Graham"

To : "ORCHARD Richard"

Subject : Re: Drones at Heron Island

Attachment : image010.jpg;image004.png;image005.png;image006.png;image008.png;image011.png;

Thanks

Sent from my iPhone

On 17 May 2018, at 3:59 pm, ORCHARD Richard <Richard.Orchard@des.qld.gov.au> wrote:

Hi Graham,

Sorry no,

Because the SOP is aimed at compliance operations there are times where we will need to make a determination that the need to obtain evidence of an offence is more important than the disturbance of birds.

All MBMP staff are aware of the issues and ZP requirements on disturbing shorebirds and have been directed to follow the ZP requirements unless it is required in performing their duties as inspectors. Only appointed inspectors are authorised to fly the drone, I believe this addresses the issue.

Cheers,

Richard

<image004.png> **Richard Orchard**
Senior Ranger
Queensland Parks and Wildlife Service | Great Barrier Reef Region
Department of Environment and Science

P 07 31012090
34 Trafalgar Street, Manly, 4179
PO Box 5178, Manly, 4179

From: HEMSON Graham

Sent: Thursday, 17 May 2018 3:09 PM

To: ORCHARD Richard <Richard.Orchard@des.qld.gov.au>

Subject: RE: Drones at Heron Island

Does the SOP have any guidelines for departmental staff regarding distances and sensitive taxa or areas?

<image005.png> **Graham Hemson PhD**
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ORCHARD Richard

Sent: Thursday, 17 May 2018 2:44 PM

To: HEMSON Graham

Subject: RE: Drones at Heron Island

Hi Graham,

All my work has been for departmental use of drones so my SOP would not help.

There are the CASA requirements and standard operating conditions, this link will take you there.

<https://www.casa.gov.au/standard-page/commercial-unmanned-flight-remotely-piloted-aircraft-under-2kg#soc>

If this is a permit application I would stay with the CASA requirements of 30m to avoid confusion for all except birds as our tests have shown that some of the more sensitive seabirds and waders show signs of disturbance with the drones at 50m so 75m should be adequate but more testing is required.

Tina Alderson has been using drones at Raine Island and will be able to give advice as well.

Hope this helps,

<image006.png> **Richard Orchard**
Senior Ranger
Queensland Parks and Wildlife Service | Great Barrier Reef Region
Department of Environment and Science

P 07 31012090
34 Trafalgar Street, Manly, 4179
PO Box 5178, Manly, 4179

From: HEMSON Graham
Sent: Thursday, 17 May 2018 1:43 PM
To: ORCHARD Richard <Richard.Orchard@des.qld.gov.au>
Subject: FW: Drones at Heron Island

Richard,

Do you have any draft SOPs that might allow me to address Liz's enquiry?

Best

<image008.png>**Graham Hemson PhD**
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.
P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: TURNER Liz
Sent: Thursday, 17 May 2018 12:33 PM
To: HEMSON Graham
Subject: Drones at Heron Island

Hi Graham

Thanks for the discussion last week about education groups using drones at Heron Island. I thought I would email you to ask for endorsement of these conditions so that we could use them for future applications and so I don't have to hassle you each time. Any application would be of course be assessed to ensure that it meets all of the legislated criteria, and we would have to be satisfied that the drone is being used as part of the education program, not just for a recreational purpose. We wouldn't include permission to use a drone as part of the standard permit.

On applications for Education permits that request a drone at Heron Island, please advise if it is acceptable to include these conditions:

The Permittee must not use a remotely piloted aircraft within a radius less than:

- ☐ 15m from cetaceans;
- ☐ 75 metres from seabirds;
- ☐ 20 metres from marine turtles; and
- ☐ 30m from crocodiles and dugongs.

The Permittee must ensure that any remotely piloted aircraft is operated in visual line of sight only, unless otherwise endorsed in writing by the Managing Agency.

The Permittee must not use a drone between 1 September and 30 April.

The first two conditions are already used on joint permits issued by GBRMPA for activities such as research and filming. The third is drafted based on your advice. If we receive a request to use a drone between the peak nesting months of September to April we would likely refuse.

Can you please tell me again the name of the GBR Region's drone specialist so that we can involve him in future discussions?

Thanks again.
Liz

<image011.png>**Liz Turner**
Team Leader, Northern Marine Administration
Permissions Management | Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science
P 07 4936 0526
61 Yeppoon Road, Parkhurst, Qld, 4702
PO Box 3130, Redhill Rockhampton, Qld, 4701
www.des.qld.gov.au

Work days: Tuesday ♦ Thursday 9am ♦ 3.00pm
<image010.jpg>

Date : 25/01/2019 10:40:47 AM

From : "HEMSON Graham"

To : [redacted]hess/commercial/profes

Subject : RE: First use of drones for rat eradication [SEC=UNCLASSIFIED]

Attachment : image001.png;image003.png;

Hi [redacted]ommercial

This is very interesting. Do you reckon it'd be cheaper than using a helicopter?



Graham Hemson PhD

Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M [redacted] (6) Personal information
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: [redacted]sch4p4(6) Personal information @gbrmpa.gov.au>

Sent: Friday, 25 January 2019 9:20 AM

To: HEMSON Graham; OLDS John; SCHAPER Dan; DUNSTAN Andrew; Andrew Denzin; stephen.garnett@cdu.edu.au; GEDDES Ben; CLARKSON John; Sarah Salmon; Neil Mattocks; Stephanie Lemm; Jen Dryden; Samantha Gibbs; KIRBY Pat; LANYON Oliver; Chris Cochrane; ARMSTRONG Bridget; LOW Jesse

Subject: FW: First use of drones for rat eradication [SEC=UNCLASSIFIED]

Good morning everyone,

FYI - Very interesting article on the application of drones in NRM work.

Cheers. Regards, [redacted]Personal information

From: Darren Cameron

Sent: Friday, 25 January 2019 9:08 AM

To: [redacted]sch4p4(6) Personal information @gbrmpa.gov.au>

Subject: FW: First use of drones for rat eradication [SEC=UNCLASSIFIED]

[redacted]Personal information

A CI colleague in New Zealand sent this to me. Thought GBR Field Management may be interested in this work. Please forward onto those you think who may be interested, if you consider useful.

cheers

Darren

From: [redacted]sch4p4(6) Personal information @conservation.org]

Sent: Friday, 25 January 2019 8:14 AM

To: [redacted]p4(6) Personal information @gbrmpa.gov.au

Subject: First use of drones for rat eradication

Kia ora friends,

Sending this example as I think this is a game changer for us in the Pacific region. Until now eradication in remote islands required helicopters, serious funding and/or a lot of people power.

Also a good example of how we could engage with expedition companies visiting our islands like Silversea Expeditions, who helped out on this one.

<https://www.islandconservation.org/ecological-restoration-north-seymour-island-drone-rat-removal/?fbclid=IwAR14gPkDqvgInnB54vN6cWadUKgc6Di7f87uC7DIVYsWwokFtAy--HfbDMA>

The proponents of this project are well known to CI so if any of you are interested to connect with them please let us know and we can set up a call.

[redacted]6) Personal information

Date : 19/11/2018 9:45:40 AM
From : "HEMSON Graham"
To : "SHEARER Damon"
Subject : RE: flight clearance for elliot
Attachment : image001.png;image003.png;image004.png;image007.png;
You'll have to look it up, I can't remember it's called DJI....something!



Graham Hemson PhD
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M [\(6\) Personal info](#)
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: SHEARER Damon
Sent: Monday, 19 November 2018 8:04 AM
To: HEMSON Graham
Subject: RE: flight clearance for elliot

Thanks for the heads up. I have the letter, who do I need to send it to?

From: HEMSON Graham
Sent: Thursday, 15 November 2018 9:02 AM
To: SHEARER Damon <Damon.Shearer@des.qld.gov.au>
Subject: RE: flight clearance for elliot

It might be that too, in fact I think it is but DD won't work with the DJI unlock



Graham Hemson PhD
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M [\(6\) Personal info](#)
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: SHEARER Damon
Sent: Thursday, 15 November 2018 7:13 AM
To: HEMSON Graham
Subject: RE: flight clearance for elliot

Okay thanks, I though it may have been a drone deploy issue.

From: HEMSON Graham
Sent: Wednesday, 14 November 2018 3:54 PM
To: SHEARER Damon <Damon.Shearer@des.qld.gov.au>
Subject: RE: flight clearance for elliot

Yes you need Lady Elliot to write you a latter and then send that via email to DJI I think who then unlocks the area for a period of time.

From: SHEARER Damon
Sent: Wednesday, 14 November 2018 9:16 AM
To: HEMSON Graham
Subject: flight clearance for elliot

Hi Graham,

Will I need clearance if I just want to free flight over a few of the bird colonies? Don't want to map on this trip. (maybe Feb next year if keen?)

Cheers,



Damon Shearer
Senior Technical Officer
Great Barrier Reef and Marine Parks Region I Capricorn Coast Management Unit
Department of Environment and Science

P 07 4971 6519
20-22 Herbert Street Gladstone
PO Box 5065 Gladstone 4680

Date : 9/10/2018 3:13:51 PM

From : "HEMSON Graham"

To : "Stephanie Lemm"

Subject : RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Attachment : image001.png;image003.jpg;image005.png;image008.png;image009.png;image010.png;image012.png;

We fly regularly over Raine at 60m and this is based upon a few field trials. There is a guideline for flying drones that I helped draft. Katharine Robertson probably has a copy. Bottom line is 60 m should be fine. If it can happen outside of bird season than great if not I'm not worried.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M **(6) Personal info**
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>

Sent: Tuesday, 9 October 2018 2:04 PM

To: HEMSON Graham

Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Hello Graham,

So, we would be comfortable with the use of drones to carry out mapping at LEI during November/December provided the drone stays at a minimum of 60 metres height? I am still a little apprehensive about this, I know the birds are a bit more savvy here given the regular aircraft activity but I would think still more appropriate for drone mapping to happen outside of the seabird season, can understand the use of drones during the seabird season if being used specifically to carry out bird surveys but for other purposes, not so sure. Don't necessarily want to set a precedent.

Let me know, thanks.

Steph

Stephanie Lemm

Project Manager Field Operations

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0556

Email: stephanie.lemm@gbmpa.gov.au



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www.gbmpa.gov.au



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From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]

Sent: Tuesday, 9 October 2018 1:19 PM

To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>

Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Yes

We fly at, at least 60m above ground and took off from the airstrip. No significant disturbance noted. Frigate birds can become curious.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M **(6) Personal info**
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Sent: Monday, 8 October 2018 10:31 AM
To: HEMSON Graham
Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Hello Graham,

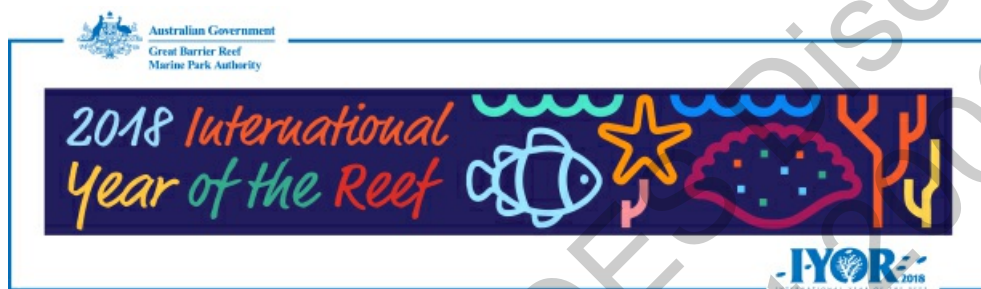
Are you happy for your drone data to be passed on to UQ? GBRF have been speaking to with Chris Roelfsema and Peter Erskine at UQ about further mapping at LEI.

Also, when you did the drone work at LEI, how did the birds manage with the drone – was there much disturbance? Is there a minimum height a drone would need to stay at to avoid disturbance?

Thank you!

Steph

Stephanie Lemm
Project Manager Field Operations
Joint Field Management Program for
Great Barrier Reef Marine Park Authority and
Queensland Parks and Wildlife Service
280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810
Phone: (07) 4726 0556
Email: stephanie.lemm@gbmpa.gov.au



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From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]
Sent: Friday, 6 July 2018 1:25 PM
To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Yes it would probably work well for noddies and other widespread species. We'd need to deploy units and do some counts around them to validate but we've got quite a bit of experience with that now. I'd look to train local staff to do the counts if we went that route and we'd continue to outsource the analysis to Conservation Metrics in the US. May not work for crested terns and other species that aggregate into small colonies but crested terns could easily be done by a combination of drone and ground observer. It'd probably need a bit of scoping thought beforehand.



Graham Hemson PhD
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Sent: Friday, 6 July 2018 1:21 PM
To: HEMSON Graham
Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Thank you!!

How would acoustic monitoring work at LEI?

Steph

Stephanie Lemm

Project Manager Field Operations

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

2-68 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0556

Email: stephanie.lemm@gbmpa.gov.au



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From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]

Sent: Friday, 6 July 2018 1:20 PM

To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>

Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

It's 40GB check in folder Steph Lemm on T-Drive on Monday!!



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M Graham.Hemson@des.qld.gov.au
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>

Sent: Friday, 6 July 2018 1:14 PM

To: HEMSON Graham

Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Hello Graham,

Yes, I would really like to see the map, it has relevance to the discussions we are having with the GBRF regarding LEI.

Thank you.

Steph

Stephanie Lemm

Project Manager Field Operations

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

2-68 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0556

Email: stephanie.lemm@gbmpa.gov.au



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From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]
Sent: Friday, 6 July 2018 1:12 PM
To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Subject: RE: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Not enough resolution and too many trees. They work fine for big birds on sand cays or in low veg but not counting noddies in casuarinas. I did put the map up onto T-drive for Mark but I'm not sure he ever downloaded it. Let me know if you want it up again? It's really big and requires ARCGIS.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M **(b) Personal info**
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Sent: Friday, 6 July 2018 1:08 PM
To: HEMSON Graham
Subject: Lady Elliot Island Bird Surveys [SEC=UNCLASSIFIED]

Hello Graham,

I recall having a quick chat with you about the LEI Drone work at LEI but can't quite remember how it went....so, were the drones suitable for the seabird surveys at LEI??

Thanks.

Steph

Stephanie Lemm

Project Manager Field Operations

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

2-68 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0556

Email: stephanie.lemm@gbmpa.gov.au



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RTI Act 2009

Date : 7/03/2019 9:23:18 AM
From : "HEMSON Graham"
To : "ARMSTRONG Bridget"

Subject : RE: Perhaps a great option for pest control projects

Mark circulated this a while back. Potential noted but not 100% sure a helicopter wouldn't often be faster, cheaper and have less admin with it. That drone would have had to be flown 150 times to drop 3000kg which probably took several days I'm not sure how many chopper loads that is or how many days flying but suspect it'd be done in a day. Also noting that a drone with a 20kg payload is neither cheap to own or easy to operate via CASA regs you'd need certified pilots or to take a contractor to the island by boat.

Case by case.

From: HEAD Damien
Sent: Thursday, 7 March 2019 8:25 AM
To: ARMSTRONG Bridget
Cc: SCHAPER Dan; ORGILL Dave; HEMSON Graham
Subject: RE: Perhaps a great option for pest control projects

I very much like it. Add it to our list. So much saving of money in time.

From: ARMSTRONG Bridget
Sent: Wednesday, 6 March 2019 4:11 PM
To: HEAD Damien
Subject: FW: Perhaps a great option for pest control projects

Hi Damien
I am sure you will find this interesting !

<https://connexdrones.com/drones-unleash-death-on-rats-on-the-galapagos/>

regards

Bridget Armstrong
A/ Assistant Principal Ranger

P 07 40479652 M (6) Personal infor

From: ARMSTRONG Warrick
Sent: Thursday, 28 February 2019 9:19 AM
To: GEDDES Ben; OLDS John; CLARKSON John; LANYON Oliver; ARMSTRONG Bridget
Subject: Perhaps a great option for pest control projects

Hi all,

FYI please see the link below – regarding a Rat eradication project, using Drones to distribute rodent baits in the Galapagos Islands.

<https://connexdrones.com/drones-unleash-death-on-rats-on-the-galapagos/>

It could provide an alternative and new opportunities in Rodent and Ant eradication projects on any of our PA's.

Regards,

Warrick Armstrong
Senior Ranger (Regional Fire Co-ordinator) – Technical Support
Great Barrier Reef & Marine Parks Region | QPWS and Partnerships
Department of Environment and Science

P 07 40479613 M (6) Personal info
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

The Ranger Base Fire Pages have transitioned to the SharePoint Ranger Base site ([hyperlink to site](#)).
The old Ranger Base Fire Pages while still accessible - are no longer being maintained.

Date : 14/01/2019 11:18:52 AM

From : "HEMSON Graham"

To : "DUNSTAN Andrew" , "DUTOIT Julie" , "ALDERSON Tina" , "MCDUGALL Andrew (Rockhampton)" , "ROBERTSON Katharine"

Subject : RE: Raine - seabirds and reducing our impacts - conversation starter !

Attachment : image001.png;image008.png;image002.png;image005.png;image006.png;

Great thanks



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Wednesday, 2 January 2019 11:46 AM

To: HEMSON Graham; DUTOIT Julie; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

I think there are at least 3 with drone vision so will pull these out and get them to you

Cheers

Andy

From: HEMSON Graham

Sent: Monday, 10 December 2018 2:14 PM

To: DUTOIT Julie; DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

Did any of these have corresponding drone vision?



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUTOIT Julie

Sent: Monday, 10 December 2018 2:04 PM

To: HEMSON Graham; DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

Graham - 6 acoustic counts have been completed on Raine over the last year and a half – see attached.

Regards,
Julie Dutoit
4047 9604

From: HEMSON Graham

Sent: Monday, 10 December 2018 1:45 PM

To: DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); DUTOIT Julie; ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

I have no issue with changing SD cards at night. Sounds very sensible.

Likewise RTTB counts; probably only need to be two or maybe three times a year and can also be done at night, although this might make spotting harder? Probably a bit more discussion needed here.

How much ground trothing are we actually getting? I'm happy to use drone derived data but it needs to be a drone circling recorder to get multiple perspective to ensure we don't over look. I'm not sure I've seen one decent set of ground trothed data yet but then again I haven't been paying attention since April. This is ultimately a question for the consultants that calculate the relationships between acoustic signals and ground trothed data so they need to be in.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Monday, 10 December 2018 1:37 PM

To: ALDERSON Tina; MCDUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie; ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

All excellent points and worked well during the trip to adapt surveys. Am keen to discuss the ground-truthing and technology aspects and get to a pragmatic plan which I think is already providing quality data from the drone work for most species. Will have more info after Jan/Feb trip with major veg cover as a parameter to consider
Cheers

Andy

From: ALDERSON Tina

Sent: Monday, 10 December 2018 12:45 PM

To: MCDUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie; ROBERTSON Katharine; DUNSTAN Andrew

Subject: Raine - seabirds and reducing our impacts - conversation starter !

Hi

We were lucky enough to have Dr Rachel Alderman who is the Team Leader – Marine Conservation Program in Dept of Primary Industries, Parks, Water and Env in Tassie come on the second trip to Raine this nesting season. Rachel is a highly experienced bird person who has done a lot of different seabird work in her role including a fair deal of time working on shy albatross on the remote Albatross Island as well as considerable time at Macquarie and Antarctica.

It was great to have some fresh bird eyes on what we do at Raine and why - so after a few conversations with her and others on the trip, I would like to open up a discussion about a few things re Raine and birds being the following:

- Undertaking the bird surveys (normal ones plus drone target surveys) and changing the SD cards appear to be the primary source of impacts on seabirds. Walking around to do these surveys and card changes, not matter how hard you try, causes some birds to leave nests and expose the eggs to the gulls that are following you around. ' On the trip Katharine and Rachel trialed changing the SD cards and batteries at night with red lights on their headspots. This worked really well – so we are suggesting this methodology is followed from now on. Additionally drone targets in the centre of the island should be installed or removed at night as well. Ie anything in centre of the island do at night
- We also made the decision on to stop the RTTB count when we were doing it on the same trip. Not sure if the gulls were just 'on target' (target being us) that day as we were doing the RTTB the same time as Katharine and Rachel were doing the SD cards but ethically we made a decision to stop due to this after the predation of two lots of eggs. We had been really really cautious as well – pretty much crawling up to any cliff edges where there was a RTTB nesting and a booby nearby on the cliff top. It was an extra RTTB count (not required under the seabird monitoring)
- Ground truth-ing – question as to how much more ground truth-ing is required for both the acoustic counts and the drone surveys. It would seem that a lot of birds are being missed and it is causing nest failure when doing 10m acoustic counts. An estimate was for 5 counts there was 15-20 egg failures from seagull following and predation. Surely the drone photo is better quality and more accurate to do these counts from than people on the ground. And if people counts are needed could you do these at night under red light? Is anything being got out of 'calibration' if the ground counts are not accurate?

So that's all opening up the conversation for discussion please – not trying to step on toes here just think it would be good to discuss how we can do it better – always room for improvement in everything we do

Ta
Tina



Tina Alderson

Project Manager
Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region
Queensland Parks & Wildlife Service
Department of Environment and Science

P (6) Personal info
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

Date : 31/07/2018 11:13:38 AM

From : "DUTOIT Julie"

To : "HEMSON Graham", "ROBERTSON Katharine"

Cc : "ARMSTRONG Bridget", "ALDERSON Tina", "MCDUGALL Andrew (Rockhampton)"

Subject : RE: Raine Island drone target locations

Attachment : image001.png;image003.png;image005.png;image006.png;image008.png;

Hi Katharine – I definitely think we should discuss the targets further with Jeff (or other surveyor).

Using structures such as the roof of the containers, the top of tower, the nest boxes etc initially sounds like a great idea. If the nest boxes are too small we could possibly attached a larger board on the roof – as long as they don't catch the wind too much... they would provide further shade / insulation which would be a good thing.

However we would still need to be put the targets out in these locations at start and finish of trip or they would just get covered in bird poo - so it's possible that using these structures doesn't actually end up minimising disturbance.

My initial thoughts on minimising disturbance would be:

- only put out the minimum number of targets required to get the accuracy needed
- make sure targets are GPS'd at the time they go out – so that the locations don't need to get revisited
- where possible plan for the laying out (or picking up) of the targets to be done by staff already doing other seabird work (such as downloading acoustics) that requires us to walk into the centre / thru vege
- use of the power carrier on the berm should probably only be happening during turtle nesting times as the vege is already dug out then – in the winter when the vege is returning and birds are nesting, I think we might need to keep the power carrier down below the vege line.

If you let me know on which trips the targets need to go out (is it needed every trip?) I will do some forward planning for seabird work and see if I can make some further suggestions re this.

Regards,

Julie Dutoit

4(6) Personal information

From: HEMSON Graham

Sent: Tuesday, 31 July 2018 11:11 AM

To: ROBERTSON Katharine; MCDUGALL Andrew (Rockhampton); DUTOIT Julie

Cc: ARMSTRONG Bridget; ALDERSON Tina

Subject: RE: Raine Island drone target locations

OK it'd be great if any opportunities for streamlining who goes into sensitive areas and how were pulled together into some sort of risk mitigation protocol.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 4(6) Personal information
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ROBERTSON Katharine

Sent: Tuesday, 31 July 2018 9:57 AM

To: HEMSON Graham; MCDUGALL Andrew (Rockhampton); DUTOIT Julie

Cc: ARMSTRONG Bridget; ALDERSON Tina

Subject: RE: Raine Island drone target locations

In terms of the ground truthing points – they are deployed at the beginning of the trip and collected at the end of the trip. The power carrier is used to go around the Island, on the berm, and the sheets carried into the locations. For example I brought all the sheets in from the centre on the last trip, just by folding them up and carrying them under my arms.

The ones in the centre we didn't go near them during the trip. I know they had to sweep a few of the ones that were on the berm, maybe twice during the trip as they got covered in the sand because of 25+ knot winds. During turtle season, the ones on the beach are checked daily or removed as the turtles pull them up or cover them in sand but again the ones in centre aren't checked or gone near.

They have tried using some of the permanent structures on the Island e.g. the nest boxes as markers but they didn't work – however I don't have an answer to why – but I can ask Jeff if need be (but is away for 1 month atm).



Katharine Robertson

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4047 9601
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870

From: HEMSON Graham
Sent: Tuesday, 31 July 2018 9:31 AM
To: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; MCDUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>; DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>
Cc: ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Subject: RE: Raine Island drone target locations

Thanks Kat,

Perhaps it would be possible for you, Julie and Andrew to talk through some options for minimising disturbance of nesting seabirds before the next trips. I'm happy for Julie to help collate any previous protocols for reducing disturbance if she has the time. In terms of these ground truthing points how often are they deployed, checked, redeployed and removed in a trip? I'm looking at this and Andy's oft touted reason for using the drone, that it reduces disturbance, and thinking that a bird survey should access these areas once in a trip and this ground truth deployment is looking like at least twice in a trip and using the power carrier?

Yes it looks like the recent sand reprofiled areas are faring significantly better than the first which still seems somewhat denuded.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: ROBERTSON Katharine
Sent: Friday, 27 July 2018 2:32 PM
To: MCDUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie
Cc: ARMSTRONG Bridget; ALDERSON Tina
Subject: Raine Island drone target locations

Hi all,
See attached the map of where the drone targets were placed on the June 2018 Raine Islands trip. There has been some discussion around the placement of these. Note the circles are bigger than the size of the actual targets

Also this the most recent drone mapping – as you can see the vegetation in the re-profiled areas has grown back quite considerably.

Cheers



Katharine Robertson

Senior Conservation Officer
Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4047 9601
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

Date : 12/10/2018 11:36:30 AM
From : "HEMSON Graham"
To : "Stephanie Lemm"
Subject : RE: Reef Islands follow up [SEC=UNCLASSIFIED]
Anytime Tuesday to Friday at this stage

Graham Hemson PhD
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

-----Original Message-----

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Sent: Friday, 12 October 2018 11:18 AM
To: HEMSON Graham
Subject: RE: Reef Islands follow up [SEC=UNCLASSIFIED]

Hi Graham,

Thank you, what is your availability next week regarding trying to organise a meeting with Jenn Loder to talk drones and birds?

Thank you.

Steph

Stephanie Lemm
Project Manager Field Operations
Joint Field Management Program for
Great Barrier Reef Marine Park Authority and Queensland Parks and Wildlife Service
280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810
Phone: (07) 4726 0556
Email: stephanie.lemm@gbmpa.gov.au

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-----Original Message-----

From: HEMSON Graham [mailto:Graham.Hemson@des.qld.gov.au]
Sent: Friday, 12 October 2018 11:15 AM
To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Subject: RE: Reef Islands follow up [SEC=UNCLASSIFIED]

Me, Phantom 4 Advanced Drone + Drone Deploy Software for flight plan and orthomosaic produced with Drone2Map, 14th Feb 2018

The rest I have no idea about.

UQ would be fine, we could do it but I doubt we'd be as professional unless we used the big drone they use at Raine.

Cancelled plan for Tville but can talk about LEI, I thought Jen wanted to hook up anyway? Maybe deal with birds and drones etc all together?

Graham Hemson PhD
Acting Principal Ranger (Technical Support) Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

-----Original Message-----

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Sent: Friday, 12 October 2018 11:05 AM
To: HEMSON Graham
Subject: RE: Reef Islands follow up [SEC=UNCLASSIFIED]

Hi Graham,

GBRMPA GIS has requested the following metadata for the drone data you provided:

- . lineage (provenance) - who, how and when a dataset was created
- . metadata that describes the age, accuracy, content, currency, scale, reliability, authorship and custodianship of an individual dataset
- . standards and procedures used in the creation of the dataset.

GBRMPA are looking at engaging UQ consultants for the drone aerial photography work at LEI. Do you think this is the preferred option or do we have in-house skills for this that could be considered Field Management in-kind contribution to the project? (I don't really know what is involved regarding subsequent analysis of data, e.g. conversion to GIS compatible etc., not sure how you do this already with the Field Management drone data??).

Do you have time to chat about the drone work and also bird surveys when you are in Townsville next week?

Thanks.

Steph

Stephanie Lemm
Project Manager Field Operations
Joint Field Management Program for
Great Barrier Reef Marine Park Authority and Queensland Parks and Wildlife Service
280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810
Phone: (07) 4726 0556
Email: stephanie.lemm@gbmpa.gov.au

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-----Original Message-----

From: HEMSON Graham [mailto:Graham.Hemson@des.qld.gov.au]
Sent: Wednesday, 10 October 2018 3:31 PM
To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Cc: MCDOUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>
Subject: Re: Reef Islands follow up [SEC=UNCLASSIFIED]

A couple of days with a professional drone pilot or the QPWS or GBRMPA drone. We have access to the drone2map software or there are other tools. I think the Raine people use DNRM who use even better software.

Sent from my iPhone

On 9 Oct 2018, at 3:46 pm, Stephanie Lemm <stephanie.lemm@gbmpa.gov.au> wrote:

Hello Graham,

Just managed to get our GIS group to look at the files of the drone work you did at LEI, looks brilliant and I think very useful for the Resilience Plan project.

It would be very useful to do these annually for LEI to monitor the revegetation of the site - what's the cost and how do we organise that (could look at GBRF funding)?

Thank you!

Steph

Stephanie Lemm
Project Manager Field Operations
Joint Field Management Program for
Great Barrier Reef Marine Park Authority and Queensland Parks and Wildlife Service
280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810
Phone: (07) 4726 0556
Email: stephanie.lemm@gbmpa.gov.au

<image002.jpg>

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From: HEMSON Graham [mailto:Graham.Hemson@des.qld.gov.au]
Sent: Tuesday, 9 October 2018 3:10 PM
To: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Cc: MCDOUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>
Subject: RE: Reef Islands follow up [SEC=UNCLASSIFIED]

I think we're all on the same page

<image001.png>Graham Hemson PhD
Acting Principal Ranger (Technical Support) Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Stephanie Lemm <stephanie.lemm@gbmpa.gov.au>
Sent: Tuesday, 9 October 2018 1:43 PM
To: HEMSON Graham
Cc: MCDOUGALL Andrew (Rockhampton)
Subject: RE: Reef Islands follow up [SEC=UNCLASSIFIED]

Hi Graham,

I had advised Jenn that we need to look at a "power analysis" type study to determine how we should be carrying out seabird surveys to pick up small changes at LEI (GBRF funded). I have also advised Jenn that there are likely to be options for use of acoustic surveys at LEI based on your trials (GBRF funded).

I have also advised Jenn that we would only be doing standard seabird surveys at end of November as per Coastal Bird Monitoring Strategy given we need more time to sort out the other stuff.

Thanks.

Steph

Stephanie Lemm
Project Manager Field Operations
Joint Field Management Program for
Great Barrier Reef Marine Park Authority and Queensland Parks and Wildlife Service
280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810
Phone: (07) 4726 0556
Email: stephanie.lemm@gbrmpa.gov.au <<mailto:stephanie.lemm@gbrmpa.gov.au>>

<image002.jpg>

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From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]
Sent: Tuesday, 9 October 2018 1:19 PM
To: Jenn Loder <jloder@barrierreef.org> <<mailto:jloder@barrierreef.org>>>
Cc: Stephanie Lemm <stephanie.lemm@gbrmpa.gov.au> <<mailto:stephanie.lemm@gbrmpa.gov.au>>>; MCDUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au> <<mailto:Andrew.McDougall@des.qld.gov.au>>>
Subject: RE: Reef Islands follow up

Jenn,

It would be good to discuss seabird related indicators that are likely to respond to revegetation and how we might set-up to monitor them effectively. My guess is that our current monitoring would not be sensitive enough as we deal in whole of island numbers and there are a great many influences that can impact on these including many unrelated to vegetation.

I am happy to tack on some time around the meeting if that helps?

best

<image004.png>Graham Hemson PhD
Acting Principal Ranger (Technical Support) Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Jenn Loder <jloder@barrierreef.org> <<mailto:jloder@barrierreef.org>>>
Sent: Wednesday, 19 September 2018 3:14 PM
To: HEMSON Graham
Subject: Re: Reef Islands follow up

Great, there will be some materials and details when you return back to the office. sch4p4(6) Personal information

I think Steph was going to reach out to you to chat bird monitoring on LEI—we held a LEI revegetation team meeting yesterday and are discussing monitoring needs to capture outcomes from restoration activities. There was a follow up around scoping recommendations on what additional information is needed to complement existing monitoring, how this would be captured (eg acoustics monitoring) and budgets to implement. I understand there is a monitoring trip planned for end of Nov, so would be good to hear your recommendations on whether there is scope to augment data collection on that trip and what would be required to ensure that could happen.

Cheers

Jenn

Jennifer Loder
Program Manager | Great Barrier Reef Foundation p +61 7 3252 7555 | m (6) Personal info e jloder@barrierreef.org <<mailto:tfyffe@barrierreef.org>> | https://urldefense.proofpoint.com/v2/url?u=http-3A__barrierreef.org_&d=DwMFAg&c=tpTxelpKGw9ZbZ5Dlo0lybSxHDHliYjksG4icXfalglk&r=2fVxiTDILFr24Dj6PhuFswOVvbTUNBcFyQcScLq-baU&m=fYAbQ6wka1r5JtIjuDAcm5papsnjNjwwUClevWYMTps&s=BSTRSsNvDNBmlCDvoO9tS3Jdque_Pf0hXzokG_CBLM8&e=>
Level 13, 300 Ann Street, Brisbane QLD 4000 | GPO Box 1362, Brisbane, QLD 4001

<image012.jpg>

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handled in accordance with the Privacy Act 1988 (Cth). Please contact the Great Barrier Reef Foundation if you have any concern about the authenticity of this communication.

From: HEMSON Graham <Graham.Hemson@des.qld.gov.au<mailto:Graham.Hemson@des.qld.gov.au>>
Sent: Wednesday, 19 September 2018 2:19:30 PM
To: Jenn Loder
Subject: RE: Reef Islands follow up

All good.

<image005.png>Graham Hemson PhD

Acting Principal Ranger (Technical Support)

Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M 4(6) Personal info

61 Yeppoon Rd, Parkhurst, Qld 4702

PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Jenn Loder <jloder@barrierreef.org<mailto:jloder@barrierreef.org>>
Sent: Wednesday, 19 September 2018 1:18 PM
To: HEMSON Graham
Subject: Re: Reef Islands follow up

Hi Graham

Just wanted to confirm your availability for the Reef Islands prioritisation workshop proposed for Oct 31-Nov 1 or Nov 1-2 in Brisbane, as I'm conscious you are out of the office for several weeks from tomorrow.

Cheers

Jenn

Jennifer Loder

Program Manager | Great Barrier Reef Foundation

p + 61 7 3252 7555 | m 6) Personal info | e jloder@barrierreef.org<mailto:tfyffe@barrierreef.org> | barrierreef.org<https://urldefense.proofpoint.com/v2/url?u=http-3A__barrierreef.org_&d=DwMFAG&c=tpTxelpKGw9ZbZ5Dlo0lybSxHDHliYjksG4icXfalgk&r=2fVxiTDILFr24Dj6PhuFswOVvbTUNBcFyQcScLq-baU&m=AuLm89pUXHDMX_0nUGUQX0I0uhKjJbBeT_bcKX-IB4Y&s=hOUAj4ABLIgSyuR85Cd9VSXK4miqtLU3ss9rPEBZD5U&e=>

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Sent: Thursday, 13 September 2018 4:43:14 PM
To: HEMSON Graham; O'GRADY Fiona
Cc: LOW Jesse
Subject: Re: Reef Islands follow up

Hi Graham, Fiona and Jesse

Thanks for starting this conversation.

A pithy VBMF doc sounds perfect! Could this include a process outline for applying the VBMF framework to a location? Ensuring we can clearly outline the VBMF approach and process for the Island prioritisation workshop participants will be critical.

Graham, I just spoke to Terry Harper yesterday and we're looking at Oct 31- Nov 1 for the revised workshop dates. We are aiming to allow a half day on Nov 1 for some synthesis of workshop outcomes. Day 2 optional, but quite useful to have you attend this second component in terms of consolidating an output from the workshop.

Thanks in advance to you all for your help. Happy to chat via phone to clarify any points.

Cheers

Jenn

Jennifer Loder

Program Manager | Great Barrier Reef Foundation

p + 61 7 3252 7555 | (6) Personal information jloder@barrierreef.org<mailto:tfyffe@barrierreef.org> | barrierreef.org<https://urldefense.proofpoint.com/v2/url?u=http-3A__barrierreef.org_&d=DwMFAG&c=tpTxelpKGw9ZbZ5Dlo0lybSxHDHliYksG4icXfalgk&r=2fVxiTDILFr24Dj6PhuFswOVvbTUNBcFyQcScLq-baU&m=AuLm89pUXHDMX_OnUGUQX0l0uhKjJbBeT_bckX-IB4Y&s=hOUAj4ABlgSyuR85Cd9VSXK4miqtLU3ss9rPEBZD5U&e=>

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<image012.jpg>

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From: HEMSON Graham <Graham.Hemson@des.qld.gov.au<mailto:Graham.Hemson@des.qld.gov.au>>
Sent: Tuesday, 11 September 2018 9:20:57 AM
To: Jenn Loder; O'GRADY Fiona
Cc: LOW Jesse
Subject: RE: Reef Islands follow up

Hi Jenn,

I should be back in by Oct 15th.

some background on VBMF. I only have the Fitzroy and Magnetic Island VA reports and thought that the Vas for islands with more significant natural values may be more relevant. Are we able to provide Draft Vas to Jenn under the proviso that they are NOT FOR CIRCULATION? Similarly can we provide a pithy document that sums up the VBMF?

Best,

<image006.png>Graham Henson PhD

Acting Principal Ranger (Technical Support)

Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info

61 Yeppoon Rd, Parkhurst, Qld 4702

PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Jenn Loder <jloder@barrierreef.org<mailto:jloder@barrierreef.org>>

Sent: Friday, 7 September 2018 5:19 PM

To: HEMSON Graham

Subject: Reef Islands follow up

Hi Graham

Great to catch up earlier this week.

Just a friendly reminder to send through those background papers on VBMF assessment procedure, examples of completed assessments, and any easily accessible relevant monitoring docs.

We've been having some chats about structure for the Island prioritisation workshop and I think we'll delay until Oct. Could you let me know when you are back from sch4p4 (6) Personal information and if there are any other off-limits time frames to consider for Oct?

Thanks heaps and have a great weekend

Cheers

Jenn

Jennifer Loder

Program Manager | Great Barrier Reef Foundation

p + 61 7 3252 7555 | m (6) Personal info e jloder@barrierreef.org<mailto:tfyff@barrierreef.org> | barrierreef.org<https://urldefense.proofpoint.com/v2/url?u=http-3A__barrierreef.org_&d=DwMFaw&c=tpTxelpKGw9ZbZ5Dlo0lybSxHDHliYjksG4icXfalGk&r=2fVxiTDILFr24Dj6PhuFswOVvbTUNBcFyQcScLq-baU&m=2HliNdWFjKc4_HSs75nHAu9-5Wh3cjL80cKUHcmjleA&s=olfxT81tUkv2We8mcgOHYk_msPn9zsFfc1CQHIB6LM&e=>

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<image012.jpg>

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Published on DES Disclosure Log
RTI Act 2009

Date : 27/07/2018 11:45:19 AM
From : "ROBERTSON Katharine"
To : "HEMSON Graham"
Cc : "ARMSTRONG Bridget" , "ALDERSON Tina"
Subject : RE: RG_Raine Island Recovery Project 2017-18 results_staff.pdf
Attachment : image002.png;image004.png;image006.png;image007.png;

Hi Graham,

That's a photo from Moulter Cay – taken the day we arrived. In terms of what they were doing was deploying the field gear away from the beach which placed on the edge of the vegetation.

In terms of movements around seabirds, particularly on the last trip, I'm happy to talk about this further. I'll send a map shortly of where the drones targets were placed around the Island to have a look at. My understanding about the targets was the concern around the closeness to the petrel nest.

In learnings from the last trip, something that would make a small difference, which I've already mentioned to Andrew and Julie, would be additional batteries/chargers for the acoustic sensors. As this would cut down the amount of walking in/out of the centre of the island. E.g. putting the drone targets out at the same time of doing the centre island acoustic surveys.

I wouldn't be able to look at anything to do with previous protocols by Cornelius and Limpus etc until at least September as I have a project to complete by Aug. But do think it is worthwhile to be examined before the next Raine trip which is in mid-October.

Cheers,



Katharine Robertson
Senior Conservation Officer
Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4047 9601
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

From: HEMSON Graham
Sent: Friday, 27 July 2018 11:11 AM
To: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>
Cc: ARMSTRONG Bridget <Bridget.Armstrong@des.qld.gov.au>
Subject: RE: RG_Raine Island Recovery Project 2017-18 results_staff.pdf

Don't worry I stayed till the end although weirdly the sound was terrible after being perfect in the test!! Thanks for those docs I will digest.

I think we need to talk about this



Superficially this looks a picture one might use as wonderful example of how not to behave around a seabird colony. Large numbers of people wandering all over the island and large numbers of seabirds flying, presumably displaced into air by aforementioned people. Really what are 12 people + the photographer doing here?

While I'm not always 100% aligned with Dave perspectives he did raise a related issue regarding the deployment of ground truth markers at Raine and the slackening of standards around bird disturbance is an issue that I think requires us to revisit protocols around who, when and how people move around Raine and Moulter and other seabird colonies especially now we are using vehicles and are deploying ground markers for drones etc.

Katharine can you talk to Tina about whether it would be OK for you to dust off the previous protocols used by Cornelius and Limpus etc around seabirds and review current practice and requirements with this. I'm happy for Julie to assist and have CC'd Bridget in in case she has any reservations about Julie's time. I'm happy not to be directly involved but would think Andrew and Dave might have contributions that would be useful.

From: ROBERTSON Katharine
Sent: Friday, 27 July 2018 10:52 AM
To: HEMSON Graham
Subject: RE: RG_Raine Island Recovery Project 2017-18 results_staff.pdf

Hi Graham,
Not sure when we lost you during the presentations but see attached the second lot of the presentation
This was something we did for the reference group about the benefits of the intervention works (and the notes that we talked too)
Sorry that the skype wouldn't work...

Cheers



Katharine Robertson
Senior Conservation Officer
Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4047 9601
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

From: ROBERTSON Katharine
Sent: Friday, 27 July 2018 9:08 AM
To: HEMSON Graham <Graham.Hemson@des.qld.gov.au>

Published on DES Disclosure Log
RTI Act 2009

Date : 18/12/2018 4:03:58 PM

From : p4(6) Personal inform

To : "HEMSON Graham"

Subject : Re: Rise Above - Phantom 4 PRO RTK

Hi Graham,

Just wanted to follow up my previous email and see if you have any questions about the Phantom 4 RTK system at all?

Please don't hesitate to get in touch as I would be happy to help you with any questions you may have.

Cheers

p4(6) Personal informati

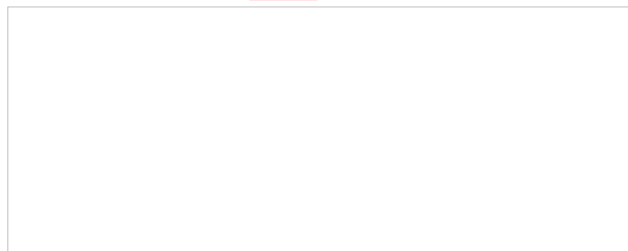
Technical Sales

Rise Above Custom Drone Solutions

p: (02) 4647 3450

a: 2/40 Dunn Rd, Smeaton Grange NSW 2567

w: riseabove.com.au e: Personal@riseabove.com.au



----- On Thu, 22 Nov 2018 14:00:10 +1100, p4(6) Personal informati [riseabove.com.au](mailto:Personal@riseabove.com.au)> wrote -----

Hi Graham,

Thanks for your enquiry about the Phantom 4 PRO RTK.

There are 2 Phantom 4 Pro RTK kits available, one with the D-RTK 2 Mobile Base Station, and one without.

Pricing for the two kits are:

[Phantom 4 PRO RTK](#) - [commercial/](#)

[Phantom 4 PRO RTK + Base](#) - [/commercial/p](#)

The D-RTK 2 Mobile Base Station can also be purchased separately at a later date if you find you need it later on. Altho this does work out a little more expensive to do it this way so its best to make sure you get the best fit for you to start with.

[D-RTK 2 Mobile Base Station](#) [commercial/p](#)

We are able to offer a 10% government discount on the above prices for you.

Which kit would suit you better depends on the environment it is to be used in. If a 4G/WiFi data connection will be available at the flight location, the D-RTK 2 Mobile Base Station is not necessary as a NTRIP broadcaster can be used over the internet (such as AUSCORS, CORSnet etc).

We have the Phantoms in-stock and ready to go, and will be receiving the base station before the end of the month.

There are no additional flight restriction on these, other than the standard no fly zone restrictions around active airports. These can all be viewed on this map - <https://www.dji.com/flysafe/geo-map>. The craft is also geo-locked to only work in the region of purchase. I am getting clarification right now from DJI as to what the Australia region includes, but anywhere within Australia will not be a problem.

More information on the unit can be found on the [official DJI product page](#).

Please don't hesitate to get in touch if you have any further questions.

Cheers

p4(6) Personal informati

Technical Sales

Rise Above Custom Drone Solutions

p: (02) 4647 3450

a: 2/40 Dunn Rd, Smeaton Grange NSW 2567

w: riseabove.com.au e: Personal@riseabove.com.au

Date : 19/10/2018 4:02:42 PM
From : "HEMSON Graham"
To : "Fergus Molloy"
Subject : Re: Seabird monitoring [SEC=UNCLASSIFIED]
Attachment : image002.png;image004.png;
Sweet!!

Sent from my iPhone

On 19 Oct 2018, at 3:25 pm, Fergus Molloy <fergus.molloy@gbmpa.gov.au> wrote:

Thanks Graham
We have asked Mark Read to estimate the Raine Island story.
Fergus

From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]
Sent: Friday, 19 October 2018 2:31 PM
To: Fergus Molloy <fergus.molloy@gbmpa.gov.au>
Subject: RE: Seabird monitoring [SEC=UNCLASSIFIED]

Fergus,

Sorry I could have done this so much faster.

250k is what we have estimated our current seabird surveys cost plus about 50k in drone and acoustic trials. I'm not sure we do much turtle monitoring other than Raine although we certainly provide Col's various endeavours with in kind support such as transport and accommodation. I would be very surprised if this was more than 50k. Raine Island however, well do you want to include that?

Graham

From: Fergus Molloy [<mailto:fergus.molloy@gbmpa.gov.au>]
Sent: Friday, 19 October 2018 9:11 AM
To: HEMSON Graham
Subject: RE: Seabird monitoring [SEC=UNCLASSIFIED]

Hi Graham
Sorry to be a pest but do you have the figures?

Cheers

Fergus

From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]
Sent: Tuesday, 16 October 2018 9:41 AM
To: Fergus Molloy <fergus.molloy@gbmpa.gov.au>
Subject: RE: Seabird monitoring [SEC=UNCLASSIFIED]

On my to do list, hopefully today or more likely tomorrow.

<image002.png> **Graham Hemson PhD**
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M **(S) Personal info**
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Fergus Molloy <fergus.molloy@gbmpa.gov.au>
Sent: Tuesday, 16 October 2018 9:35 AM
To: HEMSON Graham
Subject: RE: Seabird monitoring [SEC=UNCLASSIFIED]

Hi Graham
How are you going with this request?

Cheers

Fergus

From: Fergus Molloy
Sent: Tuesday, 9 October 2018 3:22 PM
To: 'HEMSON Graham' <Graham.Hemson@des.qld.gov.au>
Cc: Genevieve Williams <Genevieve.Williams@gbmpa.gov.au>
Subject: RE: Seabird monitoring [SEC=UNCLASSIFIED]

Hi Graham

Tuesday next week would be great.

I have attached the Islands costings and the 2016 spreadsheet. Please note, the 2016 sheet is not for circulation.

Cheers

Fergus

From: HEMSON Graham [<mailto:Graham.Hemson@des.qld.gov.au>]
Sent: Tuesday, 9 October 2018 3:12 PM
To: Fergus Molloy <fergus.molloy@gbmpa.gov.au>
Cc: Genevieve Williams <Genevieve.Williams@gbmpa.gov.au>
Subject: RE: Seabird monitoring [SEC=UNCLASSIFIED]

Fergus,

This is conceptually possible but I might need to see the breakdowns and figures you are talking about to refresh my memory. When? I'm not here tomorrow and it's not happening today.

<image004.png>**Graham Hemson PhD**
Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.
P 07 4936 0113 M (s) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: Fergus Molloy <fergus.molloy@gbmpa.gov.au>
Sent: Tuesday, 9 October 2018 1:49 PM
To: HEMSON Graham
Cc: Genevieve Williams
Subject: Seabird monitoring [SEC=UNCLASSIFIED]

Hi Graham

Sorry to bug you again.

At the last RIMReP Steering Group meeting the trade-off analysis was presented where various RIMReP designs were costed across a spectrum from irreducible to reference. I believe Brad Congdon provided cost estimates for irreducible and reference seabird monitoring. From that meeting we were asked to figure out where on that spectrum current commitments sit. In 2016 we estimated Australian and Queensland government commitments to monitoring, modelling and reporting in the GBR so the task is basically an update of that.

I have your calculations for Islands monitoring totalling \$ 1,487,195/year

Back in 2016 we had an estimate of combined seabird and turtle monitoring of \$1,500,000/year.

I realise that much of the seabird and turtle monitoring is done on the same trips that Islands monitoring happens so that it is difficult to separate the two. However, can you estimate how much more QPWS seabird and turtle monitoring costs?

If it helps and improves accuracy, rolling islands, seabirds and turtles together into one cost would work as the aim is to get an overall estimate of commitments rather than what each component costs.

Cheers

Fergus

Fergus Molloy PhD
Assistant Director Integrated Monitoring & Reporting
Reef Knowledge Section

Great Barrier Reef Marine Park Authority
280 Flinders St Townsville | PO Box 1379 Townsville QLD 4810

Phone : 07 4750 0730
Fax: 07 4772 6093
Email: fergus.molloy@gbmpa.gov.au

Visit us at www.gbrmpa.gov.au

Follow us on Facebook at www.facebook.com/GreatBarrierReefMarinePark

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Date : 2/05/2018 10:58:33 AM

From : "MELZER Rhonda"

To : "AUGUSTEYN John"

Cc : "HEMSON Graham"

Subject : RE: Thermal camera

Attachment : image001.png;image005.png;image008.png;image009.png;image010.jpg;image011.jpg;image012.png;

No worries – I don't need it til next week.



Dr Rhonda Melzer
Manager Ecological Assessment Unit
Technical Services, Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4936 0552
61 Yeppoon Road, Parkhurst
PO Box 3130 Red Hill, Rockhampton, Qld 4701

From: AUGUSTEYN John

Sent: Wednesday, 2 May 2018 9:51 AM

To: MELZER Rhonda <Rhonda.Melzer@des.qld.gov.au>; HEMSON Graham <Graham.Hemson@des.qld.gov.au>

Subject: Thermal camera

I haven't ignored your request. Hoping to get a quote tomorrow.

The unit I am looking at can also be fitted to a drone so it will give us a lot more versatility.

John Augusteyn
Ecological Assessment Unit
P 07 4936 0504

From: MELZER Rhonda

Sent: Friday, 27 April 2018 11:00 AM

To: AUGUSTEYN John <John.Augusteyn@des.qld.gov.au>; HEMSON Graham <Graham.Hemson@des.qld.gov.au>

Subject: RE: t420

First thing would be to figure out roughly how many \$ we need to hold on to for a workshop and see what's left.
r



Dr Rhonda Melzer
Manager Ecological Assessment Unit
Technical Services, Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4936 0552
61 Yeppoon Road, Parkhurst
PO Box 3130 Red Hill, Rockhampton, Qld 4701

From: AUGUSTEYN John

Sent: Friday, 27 April 2018 10:52 AM

To: HEMSON Graham <Graham.Hemson@des.qld.gov.au>; MELZER Rhonda <Rhonda.Melzer@des.qld.gov.au>

Subject: FW: t420

Sorry to bother you but was hoping to make a decision on whether we used the remaining money in the FBA code to purchase a third thermal camera to bridge the gap between the outer two cameras to fix the sightability on-the-line issue we face.

Last time I checked with Kym there was \$8000 remaining in the code.

John Augusteyn
Ecological Assessment Unit
P 07 4936 0504

From: (6) Personal info@com.au [mailto:Personal@gtek.com.au]

Sent: Friday, 27 April 2018 9:51 AM

To: AUGUSTEYN John <John.Augusteyn@des.qld.gov.au>

Subject: RE: t420

Good morning John ,

Yes we do 19211 the Tau 2 range . For a 19mm 640 Fast frame rate camera including a developers kit which gives you the pages prior and output

boards needed they are just on \$6,000AU+GST . This includes radiometry which allows one to set isotherm pallets at particular temperatures

We also have the Vue pro R (data sheet attached) which is a UAV core based on the Tau 2 . It has onboard recording , settings via a Blue tooth APP . They are \$6,295+GST , I do have a couple of 640 13mm Vue pro R's that we are selling for \$4,200+GST .

Any questions John don't hesitate to call.

Thank you.

h4p4(6) Personal informati

Manager

L2 Thermographer



Ph: 1300 416 626 | Mob: h4p4(6) Personal informati

Web: www.gtek.com.au | Email: Personal@gtek.com.au

From: AUGUSTEYN John [<mailto:John.Augusteyn@des.qld.gov.au>]

Sent: Friday, 27 April 2018 9:36 AM

To: ch4p4(6) Personal informati@gtek.com.au>

Subject: RE: t420

Hi Personal i

Was wondering if you sell the [FLIR Tau 2 640 19mm Thermal Imaging Camera Core](#) and if so approx cost please.

Regards

John

John Augusteyn

Ecological Assessment Unit

P 07 4936 0504

From: Personal@gmail) [<mailto:Personal@gtek.com.au>]

Sent: Monday, 10 July 2017 2:31 PM

To: AUGUSTEYN John <John.Augusteyn@npsr.qld.gov.au>

Subject: RE: t420

Hello John ,

I don't , I will call FLIR Service and ask them now , Can I get them to give you a call?

Kindest Regards,

ch4p4(6) Personal informatio

Managing Director

L2 Thermographer.



Ph: 1300 416 626 | Mob: ch4p4(6) Personal informatio

Web: www.gtek.com.au | Email: Personal@[gtek.com.au](mailto:Personal@gtek.com.au)

Facebook: www.facebook.com/gtekinfrared

Authorised  Distributor



From: AUGUSTEYN John [<mailto:John.Augusteyn@npsr.qld.gov.au>]
Sent: Monday, July 10, 2017 2:28 PM
To: (b) (6) Personal information (b) (6) Personal info (b) (6) Personal info @gtek.com.au)
Subject: t420

Hi Grant

Our thermal camera is playing up. The screen turns off even though the camera continues to record. Any ideas?

Cheers



John Augusteyn
Senior Conservation Officer
Ecological Assessment Unit
Technical Services, Park Services
QPWS
Department of National Parks, Sport and Racing
P 07 4936 0504 mob (b) (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

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Date : 25/10/2018 10:31:49 AM

From : "MELZER Rhonda"

To : "ALDERSON Tina", "HEMSON Graham", "MCDOUGALL Andrew (Rockhampton)"

Subject : RE: URGENT: Qld_Govt_RD_expenditure_2017-18_data_collection_template.XLSX

Attachment : image001.png;image003.png;image004.png;image006.png;image008.png;

Thanks heaps. Much appreciated especially when you have a million things to do pre trip.

Regards

R



Dr Rhonda Melzer
Manager Ecological Assessment Unit
Technical Services, Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4936 0552
61 Yeppoon Road, Parkhurst
PO Box 3130 Red Hill, Rockhampton, Qld 4701

From: ALDERSON Tina

Sent: Thursday, 25 October 2018 8:27 AM

To: MELZER Rhonda <Rhonda.Melzer@des.qld.gov.au>; HEMSON Graham <Graham.Hemson@des.qld.gov.au>; MCDOUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>

Subject: RE: URGENT: Qld_Govt_RD_expenditure_2017-18_data_collection_template.XLSX

Hi Rhonda

Have a trip heading to Raine tomorrow so a little busy and out for part of today

I have filled out some bits of the table in a mad rush this morning – havent done the aligning to priorities bit – so if someone else can do that please

Both still continued and will do – added in the auto image analysis in both – I seemed unable in the who doing bit to put more than one org – I did want to add DNRME and QUT but could only pick one thing – which seems odd for collaborations.

Tina

From: MELZER Rhonda

Sent: Wednesday, 24 October 2018 8:51 AM

To: HEMSON Graham <Graham.Hemson@des.qld.gov.au>; MCDOUGALL Andrew (Rockhampton) <Andrew.McDougall@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Subject: URGENT: Qld_Govt_RD_expenditure_2017-18_data_collection_template.XLSX

Hi Folks

Apologies – this dropped off my radar!

Each year (as GH knows too well) we have to report on the \$ we spend on research. This report is due Friday (and I'm away Fri afternoon). The second attachment is what we reported last year (2 projects only):

Trialling remote monitoring techniques for seabird populations
Trialling drone usage at Raine Island for mapping/surveying, turtle and possibly seabird counts

The definition of research used for this reporting is tight.

It is work done to improve knowledge and devise new applications.

It IS NOT:

- market research, consumer surveys, operations research or statistical analyses,
- routine computer programming,
- feasibility studies, and the extension or commercialisation of R&D.
- It also excludes general science activities such as **routine monitoring and data collection, quality control**, or health, scientific and technical services.

Can you PLEASE fill out the attached and get it back to me by Friday morning....again humblest apologies.

R



Dr Rhonda Melzer
Manager Ecological Assessment Unit
Technical Services, Park Services
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4936 0552
61 Yeppoon Road, Parkhurst
PO Box 3130 Red Hill, Rockhampton, Qld 4701

From: MARANO Nat
Sent: Wednesday, 17 October 2018 8:46 AM
To: MELZER Rhonda <Rhonda.Melzer@des.qld.gov.au>
Cc: LYONS Katie <Katie.Lyons@des.qld.gov.au>
Subject: FW: Qld_Govt_RD_expenditure_2017-18_data_collection_template.XLSX

Hi Rhonda

I normally send this request to you for completion but if you're not the right person please let me know.
I've attached our response for 2016-17,

Cheers
Nat



Nat Marano
Principal Advisor (Finance)
Park Services | QPWS Finance
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 3199 7542
Level 5, 400 George Street, BRISBANE Q 4000
PO Box 15187, City East, QLD 4002

From: MCVEIGH Craig
Sent: Monday, 15 October 2018 6:02 PM
To: L'ESTRELLE Johanna <Johanna.L'Estrelle@des.qld.gov.au>; LAIRD Tracy <Tracy.Laird@wtma.qld.gov.au>; CSS Finance <CSSFinance@des.qld.gov.au>; BOWMAN Michael <Michael.Bowman@des.qld.gov.au>; MARANO Nat <Nat.Marano@des.qld.gov.au>; MALONEY Katrina <Katrina.Maloney@des.qld.gov.au>; Emma Felsman <Emma.Felsman@arts.qld.gov.au>
Cc: MYERS Mark <Mark.Myers@des.qld.gov.au>
Subject: Qld_Govt_RD_expenditure_2017-18_data_collection_template.XLSX

Hi All

We are now collecting data on research and development (R&D) expenditure for 2017-18 FY. Please see attached reporting template and instructions.

For the purpose of this exercise R&D is defined as "*work undertaken in improve the knowledge of mankind, culture and society and to devise new applications.*" This includes:

- Research work in the social sciences/humanities
- data collection and interpretation as part of a research project
- 'feedback R&D' directed at solving problems occurring beyond the original R&D phase
- medical research
- developing new survey methods
- operational costs for the running of a research institute
- funds provided to build a new research centre.

R&D does **NOT** include:

- market research, consumer surveys, operations research or statistical analyses,
- routine computer programming,
- feasibility studies, and the extension or commercialisation of R&D.
- It also excludes general science activities such as **routine monitoring and data collection, quality control**, or health, scientific and technical services.

Reported expenditure is to include in-house research, direct funding of other organisation via grant or other method for both financial and "in-kind" expenditure. Please see instructions data sheet for details.

Can you please provide information for your division by COB 26 Oct or a Nil response.

Attached is a copy of the EHP data for 2016-17 for your reference and information.

Please let me know if you have any questions or require assistance.



Craig McVeigh
Senior Finance Officer
Budget Management & Systems | Finance & Asset Management
Department of Environment and Science

P 07 3330 5646
L32 400 George Street Brisbane
GPO Box 2454
Brisbane Qld 4001

Date : 17/12/2018 2:10:08 PM

From : "JEFFERIS Celia"

To : "MURRELL Claire"

Subject : requisition for goods/services - purchase of drone

Attachment : Approval to purchase.pdf;QUOTATION - 417479 from Garricks Camera House.pdf;requisition-for-goods-services-0144.pdf;image001.png;image002.png;

Hi Claire

Would you mind signing the attached requisition for the purchase of a drone and returning to me for Dave's signature?

Thank you kindly

Celia



Celia Jefferis
Administration Officer, Southern Great Barrier Reef
Great Barrier Reef and Marine Parks Region
Queensland Parks and Wildlife Service
Department of Environment and Science

P 07 4971 6501 | VoIP 22501 |
Level 2 | 20-22 Herbert Street | Gladstone QLD 4680
PO Box 5065 | Gladstone QLD 4680
Email: celia.jefferis@des.qld.gov.au
Visit us online at www.des.qld.gov.au

JEFFERIS Celia

From: LANYON Oliver
Sent: Friday, 14 December 2018 3:27 PM
To: BURKE Steve
Cc: JEFFERIS Celia
Subject: Re: Drone Purchase

Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

From: BURKE Steve <Steve.Burke@des.qld.gov.au>
Date: 14/12/18 14:13 (GMT+10:00)
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: Drone Purchase

OI

I have priced some drones that we discussed and I can get one from Camera house in Rockhampton for \$2799.00.

Will this be ok.

Regards
Steve



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

☎ (07) 49915162 | ☎ 4p4(6) Personal information | ✉ steve.burke@des.qld.gov.au



1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

QUOTATION

Sold To:

Steve Burke

Qld Parks and Wildlife service

po box 770

YEPPON 4703

Quotation No	417479
Quotation Date	14-DEC-18
Valid Until	13-JAN-19
Customer No	4p4(6) Personal informa
Customer Ref/PO	
Staff Member	Sandra S

Stock Code	Item Description	Qty	Item Price	Line Total
CP.PT.00000231.01	DJI Phantom 4 Pro+ V2.0 - Quadcopter	1	4p4(7)(1)(c) Business/commercial/professional/financial a	

Quotation Ex GST	\$2,544.55
GST	\$254.45
Quotation Total	\$2,799.00



Date : 15/10/2018 12:46:23 PM
From : "Karen Arthur"
To : "DUNSTAN Andrew"
Cc : "ALDERSON Tina"
Subject : Automated animal identification [SEC=UNCLASSIFIED]
Hi Andy,

Thanks again for the update last week around the automation of species identification from drone images for monitoring turtles and seabirds. Really neat work!!

When I got back to my desk today I had an email about a project out of Murdoch Uni (that you are likely already aware of) that is using AI to identify dugong from drone images of seagrass beds. The project website is here: <https://amru.org.au/>

I just thought I would pass on in case you wanted to touch base with them for any shared learnings.

Cheers,

Karen

Dr. Karen Arthur
Migratory Species Section | Biodiversity Conservation Division
Department of the Environment and Energy

GPO Box 787 CANBERRA, ACT 2601
T: 02 6274 2318
karen.arthur@environment.gov.au

Date : 15/02/2019 4:55:09 PM

From : "Paul Whittock"

To : "DUNSTAN Andrew"

Subject : Beach camera setup on Raine

Hi Andy,

I hope you've had a good turtle season and avoided crashing any drones.

I was hoping you could help me out with some info on the coastal monitoring camera you setup at Raine Island? e.g. specs, cost, data transfer, image quality, height, issues. I had a request from Care for Hedland (based in Port Hedland) for help with their current monitoring camera which seems to be very old and of poor quality.

Cheers

Paul

Published on DES Disclosure Log
RTI Act 2009

Date : 7/03/2019 10:50:13 AM

From : "ALDERSON Tina"

To : "MURRAY Kristy", "DUTOIT Julie", "MCDOUGALL Andrew (Rockhampton)"

Cc : "ROBERTSON Katharine", "DUNSTAN Andrew"

Subject : Bird surveys - drones and ethics

Attachment : image003.png;image004.png;image005.png;

Hi Kirsty

We are pretty sure that Julie was going to develop a drone ethics application for seabirds/shorebirds across the region.

Katharine forwarded on the Raine one as an example to Julie

Julie – can you confirm this is the case please and the likely timeframes

Thanks, Tina



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

From: MURRAY Kristy

Sent: Wednesday, 6 March 2019 4:33 PM

To: ALDERSON Tina

Subject: Raine Island drone surveys

Hi Tina

At Pod last week Damien suggested that we explore the use of drones to survey shorebirds in southern marine parks with a view to developing a SOP.

Talking to Graham Hemson about it he said that this work will need to be covered by ethics and that it may already be covered under the Raine Island seabird drone ethics approval.

Are you able to send me a copy of this ethics approval and/or advise if you think this new work would be covered? If it is not covered I would appreciate your thoughts on whether we amend the Raine ethics approval or lodge a new ethics application all together.

Regards

Kristy



Kristy Murray

Senior Conservation Officer

Great Barrier Reef & Marine Parks Region | QPWS & Partnerships

Department of Environment and Science

P 07 3101 2062

34 Trafalgar Street Manly Qld 4179

PO Box 5178 Manly Qld 4179

E-mail: kristy.murray@des.qld.gov.au

Date : 16/05/2019 2:45:49 PM

From : "ALDERSON Tina"

To : "DUNSTAN Andrew"

Subject : birds

Attachment : RG May 2019 Agenda Paper seabird outcomes sand reprofiling.docx;image001.png;



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P(6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

The Impact to seabirds from intervention works

RECOMMENDATION/S

It is recommended that the Reference Group:

1. Note that intervention works at Raine Island appear not to have negatively impacted seabird populations

Summary

Overall our increased presence at Raine Island as well as the sand re-profiling and fencing works, do not appear, from our current observations and surveys, to have negatively impacted the population of seabirds.

Sand re-profiling works and seabirds

Common noddies (*Anous stolidus*)

The greatest concern for seabirds from the re-profiling works was to common noddies, as they utilise the beach vegetation during winter months to nest. To determine impact, a comparison of pre-sand re-profiling breeding numbers of common noddies (2014) and subsequent years up to winter 2018 (swale transect counts) was undertaken.

Site 1: 2014 sand re-profiled area – approx. 1m of ‘fresh’ sand placed directly on top – including on top of grasses. The area remained bare for several years before slowly re-establishing.

	2014 pre-works	2015	2016	2017	2018
nests per 100m	7.5	0	0	2.2	3.7

Summary – the vegetation (grasses) in the 2014 sand re-profiling area did not recover in time for the following winter breeding seasons. Results show a potential real absence of nesting for a 2 year period with continuing slow recovery of nesting in the area as the vegetation returned.

Site 3: 2017 sand re-profiled area (east of the 2014 area) – learnings from the 2014 re-profiling were applied, using a new technique whereby the “topsoil” layer was removed, stored and then placed back over the main body of introduced sand. Vegetation reestablishment was comparable to control areas. The 2017 data was collected pre sand re-profiling (June).

	2014 pre-works	2015	2016	2017	2018
nests per 100m	5.7	N/A	1.9	0	10.4

Summary – 2016 and 2017 breeding effort may have suffered poor years due to influence of the 2014 works adjacent to them. Vegetation recovered extremely well by winter 2018 which seems to be reflected in the nests per 100m in 2018.

The modified sand re-profiling technique seems to allow for a natural recolonisation of grasses after turtle season has completed.

Note:

- It is unknown if the 2014 breeding data represented poor, average or high breeding numbers. Therefore subsequent years may be a result of a naturally poor year or due to habitat loss.
- We assume the counts have been conducted methodically and accurately by different observers

Lesser frigatebirds (*Fregata ariel*) – NCA status – Special Least Concern

- There appears to be no negative correlation between sand re-profiling works or other ground based activities with breeding effort and population numbers of lesser frigatebirds.
- Overall numbers of lesser frigatebirds have been at their highest in the last five or so years. Nesting locations appear naturally mobile, particularly with some of the smaller colonies.
- Locations are not adversely affected by past activities e.g. infrastructure placement and beach replenishment projects.
- A small colony has initiated, and persisted at a site in the swale near the tower since the sand re-profiling works commenced in 2014.

Other seabird monitoring

Red-tailed tropicbirds (*Phaethon rubricauda*) – NCA status - Vulnerable

- Surveys have shown that RTTB utilise almost all crevices under the cliff for nesting.
- RTTB that nested on the island prior to any intervention works are still utilising the Island with banding recoveries from the early 2000's.
- The highest recorded breeding effort for the red-tailed tropicbirds on Raine Island was recorded in June 2018 - 132 active nests. In 2014-15 - 121 and 2015-16 - 129 nests.

Petrels

Herald petrel (*Pterodroma heraldica*) - NCA Status – Endangered

EPBC Status - Critically Endangered

- The Project has allowed for more regular trips since 2014 which has meant sightings of petrels have increased.
- In July 2017 the first Herald petrel nest with an egg in 30 years was found. This developed into a chick, then an adolescent bird at the nest location was sighted in Oct/Nov 2017.
- In winter 2018, a further two Herald petrel nests were located, and 24 adult birds seen. The count in 2017, exceeded any previous counts of Herald petrels, when 26 birds were seen.
- Researchers from DES and QPWS are currently running a project tracking the petrels to provide information on their movements. The researchers will be going back in June 2019 to retrieve the trackers.
- Some of the birds have had bands put on them. An adult female bird banded at Raine Island (in 1984), was found on Round Island, Indian Ocean, in 2006, amongst a breeding colony. The same bird was seen again at Round Island in 2017.

Phoenix petrel *Pterodroma alba*

- First confirmed Phoenix petrel at Raine Island (and first confirmed Australian record) in June 2018. Confirmed by BirdLife Australia Rarities Committee in April 2019. Closely related to Herald petrel.

Great frigatebirds (*Fregata minor*)

NCA status - Special least concern

- The drone counts have helped get a better understanding of great frigatebird nest numbers. Although the numbers aren't large compared to the lesser frigatebirds the counts of 16 or so confirmed nests are the highest we know of at Raine Island.

Monitoring methods

- Counts by observers have been undertaken at least 3 times a year – winter and 2x summer.
- Acoustic counts – these are being analysed by Conservation Metrics – information regarding this at the next RG meeting
- Drone counts – photo mosaics have been stitched together by DNRME. Automated image analysis is being developed by QUT.

Date : 12/12/2018 11:48:49 AM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew"
Subject : Drone
Attachment : IMG_0708.JPG;ATT00001.txt;

And this bit of paper
No batteries
Doesn't look like a new one - but not sure

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RTI Act 2009



DJI Technology Australia Pty. Ltd.

Deliver to:

UAVwholesale

4 JESS CRT WURRUK VIC AUSTRALIA, 3850

Date:

2/10/2018

Box N: Number:

DJI000005194

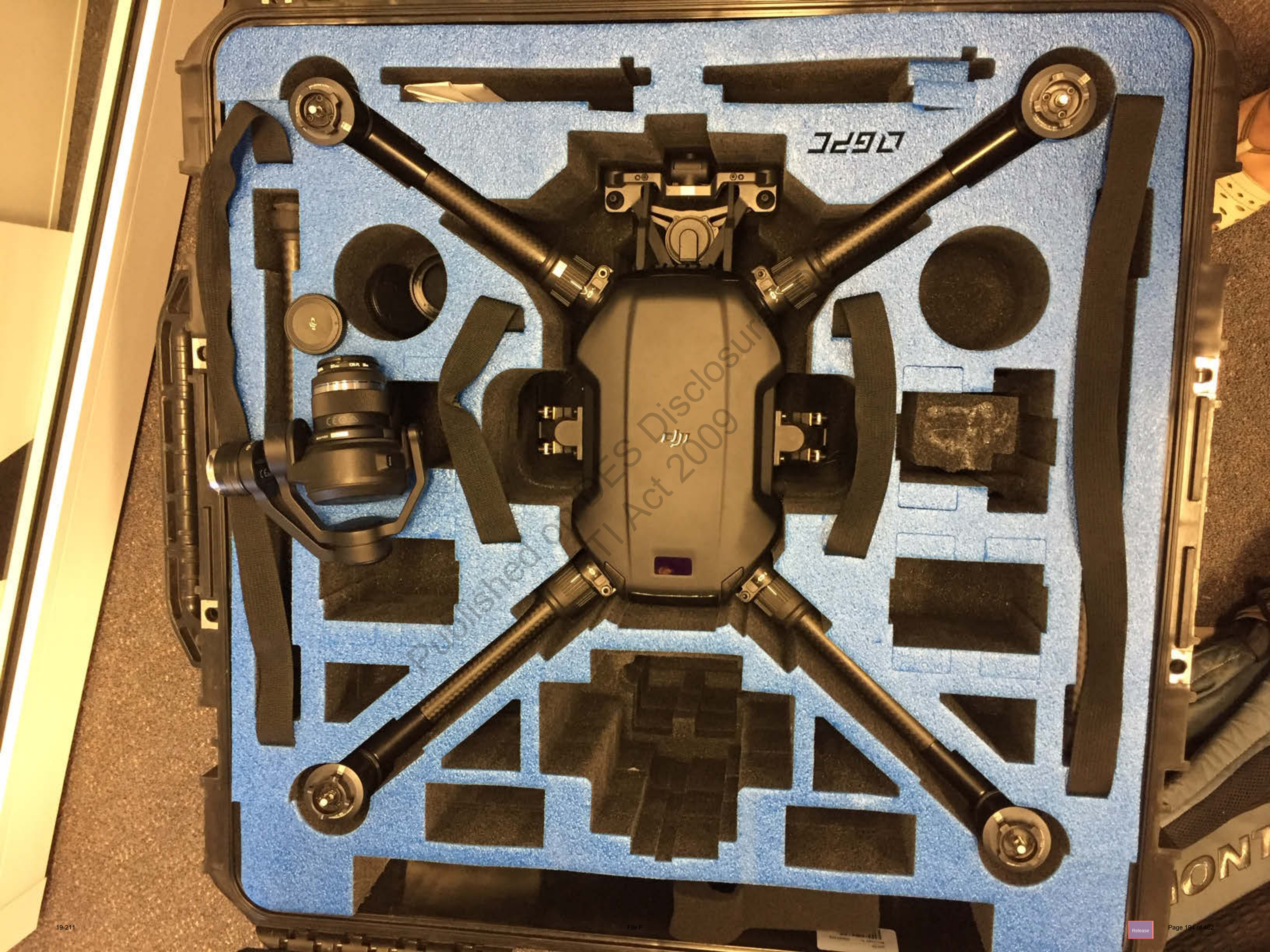
1	B1	CAS-2223798-F8J9X1	Matrice 200
2	B2	CAS-2277813-N2M2P6	TELLO
3		CAS-2291110-F1P2L7	Mavic Pro Platinum
4		CAS-2266268-V9B6F2	Phantom 4 Pro Battery
5		CAS-2205202-W4L8X1	Mavic Pro Platinum Battery

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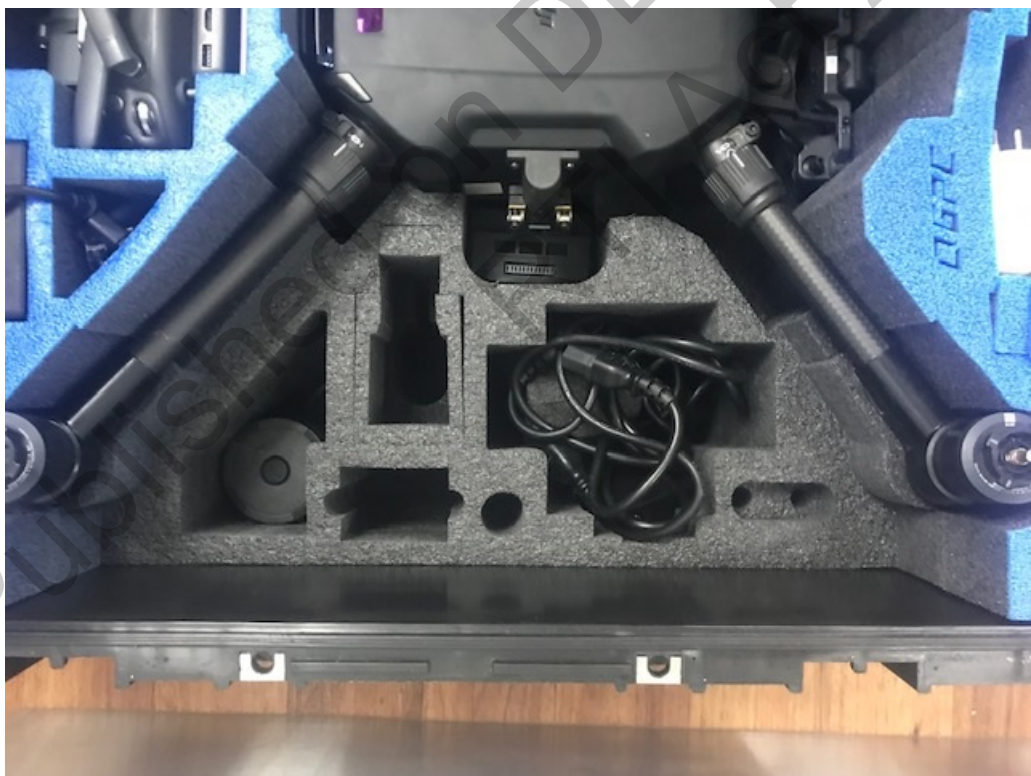
Date : 12/12/2018 11:47:02 AM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew"
Subject : Drone box
Attachment : IMG_0707.JPG;ATT00001.txt;

This is what's in the box

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Date : 26/06/2019 1:21:51 PM
From : "Andy Dunstan"
To : "DUNSTAN Andrew"
Subject : Drone packing
Attachment : IMG_7329.jpg;IMG_7330.jpg;IMG_7331.jpg;IMG_7332.jpg;IMG_7333.jpg;







Sent from my iPhone





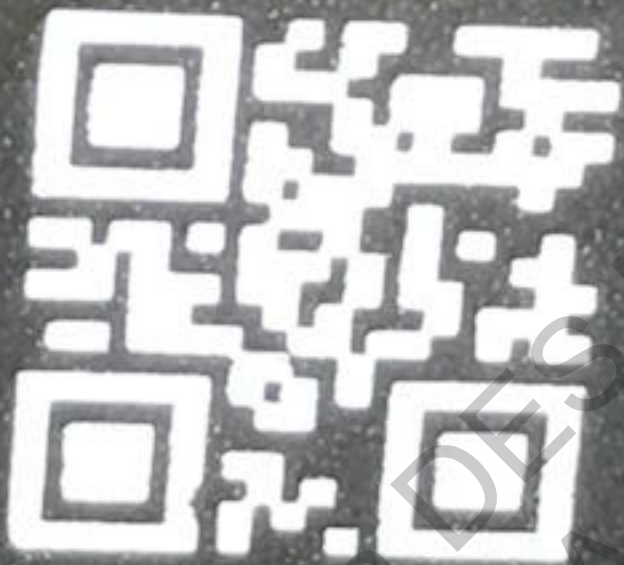






Date : 7/09/2018 9:40:43 AM
From : "Andy Dunstan"
To : "DUNSTAN Andrew"
Subject : Drone SN
Attachment : IMG_5479.jpg;ATT00001.txt;

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0FZDF4C0P20025

Date : 27/08/2018 4:37:34 PM

From : "DSOUZA Marshall"

To : "DUNSTAN Andrew"

Subject : Drone Targets

Hi Andy,

I have printed 9 targets so far and I will be in tomorrow morning to finish off four more before I head to the training block. Will you be in before 8:30 or after 4:30? Otherwise I expect lunch will be around 1pm and I can meet you then to give the targets. My mobile number is Personal information if you need to contact me tomorrow.

Cheers, Marshall

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Date : 14/08/2018 11:01:19 AM
From : "Anthony Z Loveridge"
To : "DUNSTAN Andrew"
Subject : Drones

Hi Andy
Great to meet you at the conference.
Good luck with the program, and I look forward to hearing how you are going especially the BVLOS enforcement.
Regards

Anthony Loveridge
Marine Officer | Gladstone South
Maritime Safety Queensland Branch | Customer Services, Safety and Regulation Division | Department of Transport and Main Roads

Buccaneer Drive | Hervey Bay Qld 4655
(07) 41949600 | anthony.zloveridge@msq.qld.gov.au
www.msq.qld.gov.au

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Date : 7/03/2019 9:13:34 AM

From : "DUNSTAN Andrew"

To : "ALDERSON Tina" , "ROBERTSON Katharine"

Subject : Ethics forms

Attachment : AEC Application 2018 Raine Island Seabirds Turtles UAV v1 with specs.doc;Form AE 09_Dec 17_Project Completion.docx;image001.png;

Hi guys

Have provided details for Col to update turtle work ethics reports and also the above report and new application for drone work. Should be no problems but Col will submit these and follow through and let us know.

Cheers

Andy



Dr Andy Dunstan

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

(6) Personal infor

Level 5, 400 George St, Brisbane, QLD 4000

www.npsr.qld.gov.au/raineisland

Date : 8/08/2018 4:02:43 PM

From : "Mark Read"

To : "ALDERSON Tina" , "ROBERTSON Katharine" , "DUNSTAN Andrew" , "Chris Cochrane"

Subject : FW: ABC News Story - Drones supporting turtle surveys on western cape york [SEC=UNCLASSIFIED]

Attachment : image001.png;image002.png;image003.jpg;

FYI interesting story on trialling drones to survey turtle nesting beaches.

Regards, Mark

Mark Read PhD

Assistant Director  Reef Conservation Actions

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

2-68 Flinders St Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0540, mobile:  (6) Personal informa

Email: mark.read@gbmpa.gov.au



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From: LUNDIE-JENKINS Geoff [mailto:Geoff.Lundie-Jenkins@des.qld.gov.au]

Sent: Wednesday, 8 August 2018 3:53 PM

To: 'geoff.richardson@environment.gov.au' <geoff.richardson@environment.gov.au>; Mark Read <mark.read@gbmpa.gov.au>; 'neil.bensley@environment.gov.au' <neil.bensley@environment.gov.au>; ROBERTSON John <John.Robertson@daf.qld.gov.au>; 'Steve.Costello@environment.gov.au' <Steve.Costello@environment.gov.au>; CLARE Geoff <Geoff.Clare@des.qld.gov.au>; CUMMING Kate <Kate.Cumming@dnrme.qld.gov.au>; 'fiona.bartlett@environment.gov.au' <fiona.bartlett@environment.gov.au>; DELZOPPO Lindsay <Lindsay.Delzoppo@des.qld.gov.au>; 'karen.arthur@environment.gov.au' <karen.arthur@environment.gov.au>; 'don.elphick@network.pmc.gov.au' <don.elphick@network.pmc.gov.au>; SHEVILL David <David.Shevill@des.qld.gov.au>
Cc: SIEBUHR Michael <Michael.Siebuhr@des.qld.gov.au>; 'Morris, Bernard' <Bernard.Morris@environment.gov.au>; 'Olivieri, Lauren' <Lauren.Olivieri@environment.gov.au>; GREGORY Mike <Mike.Gregory@des.qld.gov.au>; 'Katherine.Ivansson@environment.gov.au' <Katherine.Ivansson@environment.gov.au>

Subject: ABC News Story - Drones supporting turtle surveys on western cape york

Dear Steering Committee members,

The attached link relates to trial to use drones in relation to turtle monitoring being undertaken by one of our main Nest to Ocean partner organisations Cape York NRM as part of the Western Cape Turtle Threat Abatement Alliance program.

<http://www.abc.net.au/news/2018-08-08/drones-trialled-for-turtle-count-cape-york-peninsula/10089700>

Regards Geoff



Dr Geoff Lundie-Jenkins
Manager (Fire and Pests)

Technical Services | Park Services

Queensland Parks and Wildlife Service

Department of En

Science

P 07 3199 7557 |  (6) Personal infor
Level 5 | 400 Geor

ANE Qld 4001



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Date : 9/10/2018 11:23:34 AM

From : [REDACTED] (6) Personal inform

To : "Paul Whittock" , "DUNSTAN Andrew"

Cc : "Tony Tucker"

Subject : FW: Aus Marine Turtle Symposium - Workshop Chairs - Monitoring Technology, Session 1: Introduction to satellite tracking and emerging tracking technologies

Attachment : AMTS Workshop Summary_kl.docx;

Hi Team,

I sent this through to Kate to cover the first part of the session. I will leave it to you to fill in the Drone Technology workshop summary.

Cheers

Kev

[REDACTED] (6) Personal inform

Senior Technical Sales Consultant

Wildlife Computers

P: [REDACTED] (6) Personal inform Direct

m: [REDACTED] (6) Personal inform

From: [REDACTED] (6) Personal info

Sent: Tuesday, 9 October 2018 2:22 PM

To: [REDACTED] (6) Personal inform

Cc: Green Turtle; 'Tony Tucker'

Subject: RE: Aus Marine Turtle Symposium - Workshop Chairs - Monitoring Technology, Session 1: Introduction to satellite tracking and emerging tracking technologies

[REDACTED] (6) Personal inform

Senior Technical Sales Consultant

Wildlife Computers

P: + [REDACTED] Direct

m: [REDACTED] (6) Personal inform

From: [REDACTED] (6) Personal information [REDACTED]@gmail.com]

Sent: Tuesday, 18 September 2018 11:27 AM

Cc: Green Turtle

Subject: Fwd: Aus Marine Turtle Symposium - Workshop Chairs

Dear Workshop Chairs,

Thank you again for your contribution to the Symposium last weekend. I found the workshops to be a highlight of the weekend.

Can you please complete a session summary to be published in the proceedings and send to me by **16th October**. See my earlier email below for some guidance as to what to include.

Thank you in advance & take care,

[REDACTED] (6) Personal information

----- Forwarded message -----

From: [REDACTED] (6) Personal information [REDACTED]@gmail.com>

Date: Tue, Sep 4, 2018 at 6:54 PM

Subject: Aus Marine Turtle Symposium - Workshop Chairs

To:

Cc: Green Turtle <ausmarineturtlesymposium@outlook.com>

Dear Workshop Chairs

Thank you for chairing a workshop at the Aus Marine Turtle Symposium this weekend.

On completion of your workshop, can you please send a short synopsis to me for inclusion in the proceedings publication.

Please include the following in your summary (approx 500 words)

- Purpose of workshop
- Number of attendees
- Summary of outcomes
- Future recommendations for this topic or otherwise
- Any other relevant information or images for inclusion

Attached is a template to make life a little easier.

Thank you in advance - I look forward to seeing you this weekend,

sch4p4(6) Personal information

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Workshop Title:

Monitoring Technology Session 1: Introduction to satellite tracking and emerging tracking technologies

Purpose Of Workshop

To explain existing and future marine turtle satellite tracking options to researchers and managers.

Number of Attendees

80 - 100

Summary of outcomes

- Argos is currently the only viable option for satellite tracking sea turtles during migration due to short surfacing times.
- Location accuracy and volume can be greatly enhanced by using Fast-acquisition GPS technology.
- IOT, Iridium and Icarus may be suitable in the future but that is entirely dependent upon sea turtle surfacing behaviour.
- Argos satellite tracking prices have decreased by about 33% in the past year.

Future recommendations for this topic or otherwise

A satellite tracking workshop of some kind is generally well-attended at these meetings. The topic has rightly varied from year to year and has covered technology, tags, sensors, data management and attachments.

Any other relevant information or images for inclusion

I have attached the PowerPoint in case you wish to use any images.

Date : 7/03/2019 1:03:20 PM

From : "HEAD Damien"

To : "DUNSTAN Andrew"

Subject : FW: Being everywhere all of the time

Attachment : Managing the GBR -Opportunities for Technological Improvements.pdf;image001.png;image003.png;

From: HEAD Damien

Sent: Friday, 1 March 2019 2:08 PM

To : (6) Personal info@qut.edu.au; Personal@barrierreef.org

Cc: HEMSON Graham; ALDERSON Tina

Subject: Being everywhere all of the time

Matt

I would just like to personally extend my thanks to you again you for presenting and allocating so much of your time at the QPWS POD meeting this week. It proved invaluable in inspiring the team and elevating their awareness to the opportunities that robotics and AI technology can offer to field activities within the GBR.

As promised find attached a very early draft of a prospectus '*being everywhere all of the time*' in managing the GBR. As you saw at the POD workshop I put to the participants the task of coming up with other 'challenges' which could be solved through adoption of such technology and innovation. I am pretty confident I will be fielding ideas in the weeks ahead. We wish to polish this prospectus further.

I am very keen to keep the conversation going and catchup when I am next in Brisbane (maybe next week) to discuss how we in the GBR can leverage off the great work you are doing and how we best could influence and accelerate its application in the field.

Theresa and I have started similar discussions and I have included Theresa in this email.

Damien



Damien Head

A/Executive Director

Great Barrier Reef - Marine Parks – Coastal - Islands

Queensland Park and Wildlife Service

Department of Environment and Science

M (6) Personal info

E: Damien.head@des.qld.gov.au

Date : 4/07/2019 8:11:19 AM
From : "BRADSHAW Steven"
To : "HURREN Kerry-Anne" , "COOK Tayce" , "TEALEBROWNE Callum" , "DUNSTAN Andrew" , "CENTURINO Patrick" , "RALPH Tom" , "WINN Nathan"
Cc : "HESS Lee"
Subject : FW: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]
Attachment : image001.png;image002.png;

Hi all,

Please see below advice regarding the replacement for the can I fly there? app.

Regards

Steve

From: GLOSKO Brett
Sent: Wednesday, 3 July 2019 5:59 PM
To: ORCHARD Richard; BROOK Scott; BRADSHAW Steven; CARTER Greg
Cc: Drones Working Group DES
Subject: FW: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]

Hey Guys,

As an F.Y.I. if you haven't seen the below.

The app is called OpenSky, and also has approach and departure paths, and a button to select, recreational, excluded, and ReOC users, which is useful.

Does QPWS and/or Wildlife have any RPA e-mail distribution groups?



Brett Glosko
Compliance Delivery Manager & Chief Remote Pilot
Remotely Piloted Aircraft Systems
Department of Environment and Science

P 07 5626 6840
ARN 1057139
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

From: CASA mailing lists <mailing.service@casa.gov.au>
Sent: Wednesday, 3 July 2019 11:51 AM
To: GLOSKO Brett
Subject: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]

CASA-approved drone safety app now available

The first CASA-approved drone safety app connected to our new RPAS digital platform is now available for all recreational and commercial drone operators to download and use.

The digital platform is an exciting technological development for CASA and is the foundation of a fresh approach to safety for unmanned operations.

Over the coming weeks, we will retire the Can I fly there? app. We recommend that you delete the 'Can I fly there?' app now and visit www.casa.gov.au/droneapp to select an alternative drone safety app.

The development of our platform aligns with the broader whole-of-government approach to 'open data' in order to improve services to the community. It is also another first step in helping us to integrate drones into Australian airspace safely and efficiently.

In the future, we're excited that the new platform will also:

- integrate with our proposed drone registration system
- allow licenced operators to submit flight authorisation requests
- automate approvals to operate within 3 NM of a controlled aerodrome, where safe to do so
- provide the building blocks for a future RPA traffic management system.

For more information, go to www.casa.gov.au/droneapp. Future CASA-approved apps will allow developers to innovate and keep pace with technological change.

--

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Date : 15/11/2018 3:35:54 PM

From : "MEAGER Justin"

To : "DUNSTAN Andrew"

Cc : "LIMPUS Duncan" , "LIMPUS Col"

Subject : FW: Draft framework for a potential CSS drone (<2kg) program

Attachment : RPAS_Operational_Procedures_(Library).docx;Departmental_RPAS Operations Manual.docx;RPA Project plan signed.pdf;image001.png;image007.jpg;image002.png;

FYI: wildlife's draft UAV SOP. I'd be interested in your opinion on the appropriateness of the SOP for marine wildlife research and monitoring.

Cheers, Justin

From: BRIEN Matt

Sent: Tuesday, 13 November 2018 11:35 AM

To: MILLS Frank; SMITH Brent; WALSH Donna; HODGON John; LIMPUS Col; ARTIEMIEW Chris

Cc: JOYCE Michael; BERI Paul; EGAN Sally

Subject: Draft framework for a potential CSS drone (<2kg) program

All,

Northern Wildlife Operations recently completed a pilot program for the trial use of drones (<2kg; DJI Phantom 4) as a wildlife management and communication tool. The trial has been successful, with drones (<2kg) safely deployed, and in compliance with the Civil Aviation Safety Authority (CASA), in a range of field operations including crocodile incident responses, site assessments, flying fox roost assessments, and cassowary releases.

While drones have very broad utility and are used by a number of different state and federal departments and agencies, issues have commonly arisen from both a safety and compliance perspective (CASA). As a result, a number of departments have been suspended from using drones for various lengths of time until they could prove safe and compliant operation.

Therefore, the intention of this pilot project, while wildlife focussed, was on developing a draft framework for a safe and compliant operational drone (<2kg) program for potential use across CSS. At this stage, the focus is simply on the use of drones <2kg, so there is no requirement for a Remote Pilot licence (RePL) which becomes far more complicated.

As part of this process Northern is now requesting any feedback/comments on the attached documents - Departmental Remotely Piloted Aircraft Systems (RPAS) Operations Manual and the accompanying RPAS Operational Procedures Library, and the potential for this to be developed into a CSS wide program.

If we could ask for feedback/comments back by **14 December 2018**.

Regards



Dr Matthew Brien

Program Coordinator, Northern Wildlife Operations
Conservation and Biodiversity Operations Branch
Conservation and Sustainability Services
Department of Environment and Science

P: 07 4222 5110 E: Matt.Brien@des.qld.gov.au

PO Box 7230, Cairns QLD 4870

Wildlife Management: 1300 130 372 Website: www.des.qld.gov.au



Department of Environment and Science

RPAS Operational Procedures (Library) – Appendix 4 of Operations Manual

Version 1.0

This Operational Procedures (Library) covers the following aircraft: **DJI Phantom 4 Pro**



This document is a safety Procedures Manual for the Department of Environment and Science that covers all of the appropriate aspects required to satisfy the requirements of the Civil Aviation Act and the Regulations. The Library is Appendix 4 in Operations Manual for RPAS, approved by CASA for the Department of Environment and Science.

CONTENTS

PART 1 - GENERAL	3
1.1 PURPOSE.....	3
1.2 DISTRIBUTION CONTROL.....	3
1.3 COMPLIANCE REQUIREMENT	3
1.4 AMENDMENT PROCESS	4
1.5 REVISION LOG	4
PART 2 – COMPANY PROCEDURES	5
2.1 NORMAL OPERATIONS.....	5
2.2 NON-NORMAL OPERATIONS	5
2.2.1 Emergency Procedures	5
2.3 SPECIALISED OPERATIONS.....	7
2.3.1 Operations within 3NM of Uncontrolled Aerodromes	7
2.3.2 Operations near Controlled Aerodromes	8
2.3.3 Within the Approach and Departure path of an Aerodrome	8
2.3.4 In the Movement Area of an Aerodrome	8
2.3.5 Operations at Night, in Cloud or in conditions other than Day VMC.....	9
2.3.6 Above 400 feet AGL.....	10
2.3.7 Operations beyond visual line of sight (BVLOS)	10
2.3.8 Operations over populous areas	10
2.3.9 Operations between 30–15m of people - Non-Departmental personnel.....	11
PART 3 – DJI PHANTOM 4 PRO	12
3.1 PRE-FLIGHT & POST-FLIGHT CHECK	12
3.2 MAINTENANCE SCHEDULE	12
3.3 RPAS RELEVANT USER MANUAL(S)	12
3.4 BATTERY MANAGEMENT	13
APPENDIX 1 – PRE-FLIGHT/POST-FLIGHT/GENERAL ROUTINE MAINTENANCE CHECKLIST	15
APPENDIX 2 - FLIGHT AUTHORISATION FORM.....	17
APPENDIX 3 - PRE-OPERATIONAL BRIEFING	18
APPENDIX 4 - POLICY AND PROCEDURE TRAINING SYLLABUS	19
APPENDIX 5 - RPAS TYPE TRAINING AND INDUCTION SYLLABUS.....	22
APPENDIX 6 – REMOTE PILOT RPAS LOG BOOK.....	25
APPENDIX 7 - JOB SAFETY ASSESSMENT	26
APPENDIX 8 - RPAS TIME IN SERVICE* LOG	28
APPENDIX 9 - RPAS MAINTENANCE SCHEDULE AND DEFECT LOG.....	29
APPENDIX 10 – RPAS MINOR OCCURRENCE NOTIFICATION FORM.....	31
APPENDIX 11 – RPAS BATTERY CHARGE LOG.....	32
APPENDIX 12 – NIGHT VLOS TRAINING SYLLABUS.....	35

Part 1 - General

1.1 Purpose

The purpose of this document is to detail the specific procedures and information relevant to how the Department of Environment and Science will safely conduct various types of operations using DJI Phantom 4 Pro. All persons involved in the operations of RPAS are under the authority of the Department's Remotely Piloted Aircraft Operator's Certificate (ReOC) and/or other authority or exemption from CASA. This document forms Appendix 4 of the Department's RPAS Operations Manual.

This document encompasses:

- a section that contains normal, specialised and emergency situation procedures,
- a section for each RPAS type operated under this CASA approved manual,
- appendices containing supporting documentation such as, but not limited to: checklists, copies of authorisation forms, briefing material, training syllabi, JSA, risk assessment, RPAS time in service log, battery charging log, maintenance schedule and defect log.

The specific section for each RPAS will include the following information:

- maintenance information such as pre/post flight checks, maintenance schedules, maintenance manuals for RPA/ground station/camera/batteries, etc. where applicable.
- RPAS operational information such as RPAS user manuals for RPA/ground station/camera/batteries, etc. where applicable.

Information included in this document may be a hard copy or electronic document, or included by reference to an external source.

1.2 Distribution Control

The Chief Remote Pilot will keep the manual up-to-date at all times, notifying employees of any amendments made by email as per the distribution list. These emails will require a confirmation email from employees confirming receipt of the amendment. These confirmation emails will be regarded as an undertaking by the staff member that they have read the amendment and will operate RPAS in accordance with the manual.

The Chief Remote Pilot shall annually review the contents of the Operational Procedures (Library) to ensure the relevance and currency of all procedures. Any amendments made will be recorded in the controlled copy on the intranet in the Revision Log, page 4.

Copies of any manual not accessed directly from the intranet are not controlled and must not be used as a basis for controlling operations.

1.3 Compliance Requirement

The instructions, procedures and information contained in this manual have been devised to ensure the legality, safety and standardisation in the conduct of operations. They are to be observed by all operating personnel. Personnel are reminded of their obligation to comply with the *Civil Aviation Act 1988*, Regulations and Orders and such directives, aeronautical information and notices as issued in CASA and Airservices Australia publications.

Nothing in this manual takes precedence over CASA regulations or permits unsafe operation.

1.4 Amendment Process

Where in the light of operating experience, errors are found in procedures or information contained within this document; recommendations for amendment action shall be submitted to the Chief Remote Pilot.

Unless otherwise directed by CASA, all changes to this document may be accepted and approved by the Chief Remote Pilot.

1.5 Revision Log

Commitment of Chief Remote Pilot

Version Number	Date	Amendments Incorporated	Authorised By
1.0		First Edition of Department of Environment and Science Operations Manual for RPAS	

This Operational Procedures (Library) document outlines specific procedures and information for the Department of Environment and Science to safely conduct its RPAS operations, in association with the Department's Operations Manual of which this forms Appendix 4.

It is accepted that the contents of this document do not override the necessity of reviewing and complying appropriately with any new or amended regulation published from time to time by the relevant national aviation authorities addressed by this document.

Signed.....

Date.....

Chief Remote Pilot

Part 2 – Company Procedures

2.1 Normal Operations

Normal Flight will be carried out by the authorised Remote Pilot in accordance with the instructions and conditions outlined on the Flight Authorisation Form approved by Chief Remote Pilot. If the CRP is not available, sign off is required by Wildlife Operations Manager or higher delegation. RPAS will be operated in accordance to the Manufacturer's instruction and in accordance with the Department's CASA approved Operations Manual. Third party considerations ie property/land owners will be taken into account as part of any operation in the planning phases as well as during the operation.

A blank Flight Authorisation form can be found in Appendix 2.

Normal Procedures

1. Seek approval from Chief Remote Pilot for operation and fill out Flight Authorisation Form (Appendix 2). Perform JSA (Appendix 7) to determine if operation is viable.
2. Establish clear area for take-off and landing zones. Warning signs and safety cones will be erected at a distance of 30m from RPAS operations unless inside of a fully fenced work site. This is to clearly identify an area of operation and create an exclusion zone.
3. Visual check local weather and if too windy, storms or raining, cancel flight.
4. Check Risk Assessment for instructions (refer to Appendix 3 in the Department's Operations Manual) regarding flight and perform JSA of the location. Brief crew and spotters of flight task with an audio recorded toolbox talk and complete Pre-Operational Briefing checklist (Appendix 3).
5. Prepare RPA and accessories for flight.
6. Carry out pre-flight inspection of RPA as per pre-flight inspection sheet using hard-copy or electronic version (Appendix 1).
7. If relevant or necessary - check radio communication by turning on the radio, listen to CTAF.
8. Turn on RPA when placed on the ground for departure and setup Failsafe Return To Home (RTH) function. Check video and camera setting.
9. Start RPA and flight timer after Failsafe function and lift off 2m to check stability and control.
10. Return when flight complete or battery low. Pack up RPA and signage.
11. Perform post-flight checklist (Appendix 1) and RPAS Time In Service Log (Appendix 8).
12. Complete RPAS Minor Occurrence Notification Form (Appendix 10) and RPAS Maintenance Schedule and Defect Log (Appendix 9) if necessary.

2.2 Non-Normal Operations

In addition to the emergency procedures detailed for a specific RPA in the relevant user's manual, the Non-Normal Operations procedure details how an emergency situation will be handled by the RPAS operational crew as outlined below.

2.2.1 Emergency Procedures

For any situation evoking an emergency procedure as outlined below, the Chief Remote Pilot or delegate is to be notified in the first instance once any immediate safety concerns have been addressed. Refer also to section 6.4.4 *Accident/Incident Reporting* in the Department's CASA approved Operations Manual. The Chief Remote Pilot will follow Departmental processes for reporting accident, incident or near miss.

Injured Persons

First aid shall be given to treat any injuries received and transport to hospital shall be made using medical services where proximity allows.

Fly Away or Visual Loss of RPA

Where an RPA is experiencing loss of control or is visually lost, all attempts shall be made to regain control or initiate the Return To Home (RTH) function. Should these attempts fail perform a combined stick movement to shut-down the motors with due regard for the location of the RPA so as not to increase the risk of collision with persons or property. The Controller will shout warning to people or use radio where necessary. The shut-down timing is crucial to control the RPA termination point within a safe area before the aircraft has the possibility to fly beyond the area of operation into areas over people/property etc. In the event of an uncontrolled Fly Away, the RPA will be deemed unserviceable pending inspection by the Maintenance Controller.

GPS Failure, Loss of Orientation

Follow the procedures as previously mentioned for Fly Away while monitoring the RPA heading to look for correct Return To Home flight path. Any incorrect flight behaviour during Return To Home procedure will be terminated and switching to Attitude Mode immediately and fly the RPA to a safe landing area. Any differing directional control where the stick input is mismatched to the RPA heading shall be accounted for by compensating the stick movement accordingly. Where the RPA is uncontrollable follow the motor shut-down procedures as described previously in Fly Away. The RPA will be deemed unserviceable pending inspection by the Maintenance Controller.

Accident/Incident Management

Accidents and incidents can be classified as minor or major.

As a rule of thumb all accidents or incidents that cause 3rd party property damage, injury or death are classified as major or Immediately Reportable Matter and must be reported to local emergency services and the ATSB immediately. The ATSB website at www.atsb.gov.au/aviation provides the best contact and procedure details. A written report will be submitted to ATSB as soon as possible after and within 72 hours of the accident.

For minor incidents or Routinely Reportable Matters which have not caused any 3rd party damage or injury but may potentially attract media attention it is advised to notify the CASA RPAS office at UAS@casa.gov.au in order to make them aware of any potential media information request. A written report will need to be submitted to ATSB within 72 hours of the minor incident.

All accidents, incidents or near hits must be reported to the CRP or delegate. The CRP will follow Departmental processes for accident/incident reporting. After each operation, the RPAS Post-flight Checklist must be completed. In the event of a minor occurrence which does not constitute a near miss or incident (i.e., RPA tips over on landing and damages propeller) an RPAS Minor Occurrence Reporting Form must be completed (Appendix 10). Refer also to section 6.4.4 *Accident/Incident Reporting* in the Department's CASA approved Operations Manual. After any minor or major accident or incident the RPA will be deemed unserviceable pending inspection by the Maintenance Controller.

Motor Failure

In the event of a motor failure, all attempts should be made to bring down the RPA immediately in a safe area. Follow procedures below referring to Crash. The RPA will be deemed unserviceable pending inspection by the Maintenance Controller.

Collision, Crash and Damaged RPA

Where a collision or crash occurs priority shall be given to reduce any further damage or injuries to persons or property. Attempts shall be made to shut down motors via the controller as soon as possible, battery power shall be disconnected and the scene preserved. The RPA shall be immediately inspected for potential of a damaged battery to monitor the potential of a battery fire.

The RPA will be deemed unserviceable pending inspection by the Maintenance Controller.

Public shall be restricted access to area until deemed safe.

If the RPA has crash landed, and the pilot is aware of the location, the pilot must obtain permission from the applicable land owner prior to retrieving the RPA. If the land owner does not give the Pilot permission

to enter private property to retrieve the RPA, the Pilot must inform the Chief Remote Pilot who will contact the Police and ask the Police to retrieve the RPA on behalf of Department. The Department of Environment and Science is still the legal owner of the RPA.

If the RPA has crash landed and the pilot is not able to locate the RPA, the pilot using footage from the last transmission, will try and determine the location of the crash site to retrieve the RPA.

Serviceability and Assessment of the RPA

- Phantom 4 Pro User Manual
- Pre-Flight/Post-flight/General Routine Maintenance Checklist
- RPAS Maintenance Schedule and Defect Log
- Discuss the need for maintenance with the Maintenance Controller prior to organising a service through DJI

EMERGENCY CONTACTS:

Refer to the below table –

Ambulance	000
Police	000
Fire Services	000
SES	132 500
Coast Guard Townsville	4771 4831
Coast Guard Cairns	4051 2192
Coast Guard Port Douglas	4099 5392
Surf Life Saving	3846 8000
Telstra	13 22 00
Ergon Energy	13 22 96
Wildlife Operations Manager	See Department staff contacts list
Chief Remote Pilot	See Department staff contacts list
Maintenance Controller	See Department staff contacts list

2.3 Specialised Operations

Specialised operations detailed below may be conducted subject to authorisation by CASA as well as authorisation stated in Normal Operations *Section 2.1*. Operations within Prohibited or Restricted areas are subject to the approval of the authority controlling the area.

2.3.1 Operations within 3NM of Uncontrolled Aerodromes

Remote Pilots must not operate an RPA within 3NM of an aerodrome (including any HLS or ALA listed in ERSAs from Airservices Australia) unless the operation has been authorised by the Chief Remote Pilot. Refer to *Section 6.4.3.1* of the Operations Manual.

The relevant air traffic service frequency or frequencies, or the relevant CTAF (as applicable) must be monitored for aircraft traffic 15 minutes before the first launch and then continuously for the duration of the operation of the RPA.

For operations within a Controlled Traffic Region (CTR) the appropriate air traffic control tower must be contacted by telephone and informed of the location and intention of the RPA operation at least 15 minutes before the first launch of the RPA, and then again at the end of the operation.

For operations within a CTR, any transponder fitted to the RPA must not be activated unless specifically requested to do so by air traffic control.

For operations within Class G airspace (uncontrolled airspace predominantly used by light aircraft) only unless directed otherwise, the location of the RPA must be transmitted using call sign 'Unmanned RPA' on the appropriate air traffic frequency 15 minutes before the first launch and then at 15 minute intervals for the duration of the operation of the RPA.

For operations at a non-controlled aerodrome marked on aeronautical charts or listed in ERSa, the location of the RPA must be transmitted using call sign 'Unmanned RPA' on the relevant CTAF — 15 minutes before the first launch and then at 15 minute intervals for the duration of the operation of the RPA.

The chief remote pilot must ensure that the RPA is not flown, within 500 feet vertically and within 1500 metres horizontally of any aircraft.

The operator must ensure that in the period from 15 minutes before the RPA is launched to the time that the RPA lands, at least one person who is trained as an observer is present with the RP.

The chief remote pilot must ensure that the RPA is equipped and operated with an active fail safe RTH mode that will ensure that, in the event of a data-link loss with the RPA or any loss of control of the RPA, the RPA will:

- adjust altitude to the minimum safe level to provide obstacle clearance and minimum potential for collision with other aircraft, in any case not above 400 feet AGL;
- transit to a predefined safe landing or flight termination area; and
- land or otherwise terminate the flight.

2.3.2 Operations near Controlled Aerodromes

Unless otherwise permitted by Airservices, Remote Pilots must not operate an RPA within 3NM of the boundary of an aerodrome that has an active ATC service. The Chief Remote Pilot is responsible to ensure that operations are not planned or approved for such areas.

Refer to *Section 6.4.3.2* of the Operations Manual.

2.3.3 Within the Approach and Departure path of an Aerodrome

Unless otherwise permitted by CASA, the Remote Pilot must ensure the RPA is not operated at any altitude in the approach or departure path of an Aerodrome, including any ALA or HLS listed in ERSa. The Chief Remote Pilot is responsible for ensuring that operations are not planned or approved for such areas.

Refer to *Section 6.4.3.3* of the Operations Manual.

2.3.4 In the Movement Area of an Aerodrome

Unless otherwise permitted by CASA (or for a controlled aerodrome only Airservices), the Remote Pilot must ensure the RPA is not operated over the movement area of an Aerodrome, including any ALA or

HLS listed in ERSA. The Chief Remote Pilot is responsible for ensuring that operations are not planned or approved for such areas.

Refer to *Section 6.4.3.4* of the Operations Manual.

2.3.5 Operations at Night, in Cloud or in conditions other than Day VMC

Unless otherwise permitted by a separate instrument of approval from CASA all operations at night must only be undertaken in class G airspace below 400ft AGL with the aircraft remaining within visual line of sight at all times. Refer to *Section 6.4.3.5* of the Operations Manual.

Operations at night must only be conducted by the chief remote pilot or authorised remote pilots named below who have completed training and testing in the operation of an RPA at night and who are current on type. Remote Pilots must complete the Night VLOS Training Syllabus (Appendix 12) prior to operating a RPA in any night time VLOS operations.

Remote pilots authorised for night operations

Name in full	ARN	Training completion date	Currency end date	Signed

Operations at night must only be conducted in conditions that would otherwise be considered VMC. Assessment of any operations should include a detailed review of the forecasted weather conditions on the day to ensure VMC requirements can be met. Additionally an onsite assessment must be undertaken by the chief remote pilot/remote pilot to ensure the operation will be within VMC. Note: cloud base heights can be difficult to discern at night and can drop rapidly, so extreme caution should be taken where operations are conducted where low cloud base is anticipated.

Operations at night must only be conducted where a Job Safety Assessment has been completed and signed off by the chief remote pilot. All Job Safety Assessments must include an onsite assessment which has been conducted in day VMC. This assessment should be used to identify any obstacles or hazards that would not be apparent to a pilot flying at night such as powerlines or building antenna's etc.

All take-off and landing areas must be illuminated to near daylight conditions to assist the pilot in safe take-off and landing.

The RPA must be fitted with the following equipment; all equipment noted below must be checked as part of any pre-flight procedure and should be included within ABC's RPA maintenance program. Operators should amend their pre-flight checks and maintenance procedures to accommodate this.

- Serviceable GPS for the purpose of providing accurate data to the GPS hold and GPS return to home function.
- Telemetry data which indicates a positive satellite lock has been achieved by the RPA. Where the manufacturer does not specify a number of satellites to gain lock then the aircraft shall not fly with less than seven (7) satellites positively acquired.

- Telemetry data which indicates to a base station which is co-located with the pilot in command the RPA's position in three dimensional airspace, that is to say distance and bearing from the operator and a height above ground level. Note: Where an RPA uses Above Mean Sea Level (AMSL) data then the operator must have a means to readily convert AMSL data to Above Ground Level (AGL) data.
- Sufficient lighting to ensure positive identification of the RPA once in flight, and to ensure that the orientation and direction of the aircraft can be determined visually by the Pilot in Command. This might be high output coloured LED's fitted to the arms/wing tips of the RPA.

During the JSA process consideration must be given if rain or if a thunderstorm is observed or reported within 5km of the operational location.

The chief remote pilot must ensure that the RPA is not flown, within 500 feet vertically and within 1500 metres horizontally of any aircraft.

As part of the JSA process the CRP must consider the safety benefit associated with having at least one person who is trained as an observer.

The CRP must ensure that the RPA is equipped and operated with an active fail safe RTH mode that will ensure that, in the event of a data-link loss with the RPA or any loss of control of the RPA, the RPA will:

- adjust altitude to the minimum safe level to provide obstacle clearance and minimum potential for collision with other aircraft, in any case not above 400 feet AGL;
- transit to a predefined safe landing or flight termination area; and
- land or otherwise terminate the flight.

2.3.6 Above 400 feet AGL

Unless otherwise permitted by CASA, the Remote Pilot must ensure the RPA is not operated above 400ft AGL. Height above ground level (AGL) is the difference between altitude and elevation at the RPA's position. The Chief Remote Pilot is responsible for ensuring that operations are not planned or approved for such areas.

Refer to *Section 6.4.3.6* of the Operations Manual.

2.3.7 Operations beyond visual line of sight (BVLOS)

Unless otherwise permitted by CASA, the Remote Pilot must ensure the RPA is not operated BVLOS. The Chief Remote Pilot is responsible for ensuring that operations are not planned or approved for such areas.

Refer to *Section 6.4.3.7* of the Operations Manual.

2.3.8 Operations over populous areas

Unless otherwise permitted by CASA, the Remote Pilot must ensure the RPA is not operated over a populous area. The Chief Remote Pilot is responsible for ensuring that no operation is planned or approved for such areas until approval from CASA has been obtained.

A **populous area** is defined as an area that has a sufficient density of population for some aspect of the operation, or some event that might happen during the operation (in particular, a fault in, or failure of, the aircraft) to pose an unreasonable risk to the life, safety or property of somebody who is in the area but is not connected with the operation.

Refer to *Section 6.4.3.8* of the Operations Manual.

2.3.9 Operations between 30–15m of people - Non-Departmental personnel

Unless otherwise authorised by the Chief Remote Pilot (Flight Authorisation Form), the Remote Pilot must ensure the RPA is not operated within 30m of any person who is not directly involved with the operation of the RPA persons being filmed or photographed such as actors, athletes, or members of the public, are the subject of an operation.

Any operation within 30 metres of non-operational personnel requires the following equipment as a minimum.

The RPA should have:

- a dual parallel redundant battery system with duplicated battery mountings
- demonstrated ability to fly safely with one motor inoperative at the maximum take-off weight for the operation
- GPS hold and return to home function must be operational with a minimum reception of at least 7 GNSS satellites.

As part of the procedure for operation within 30m of non-operational personnel the Chief Remote Pilot must, in addition to all other normal operational requirements, perform a detailed risk assessment that specifically considers the increased risk of operations in close proximity of people. The risk assessment is not limited to, but must consider, the following:

- speed of the machine
- size of the machine
- speed of the non-operational personnel
- non-operational personnel's awareness of the RPA's position at all times
- flight path in relation to non-operational personnel
- number of non-operational personnel involved
- position of controller in relation to RPA and non-operational personnel
- environment, wind, sun, lighting etc.
- possibility of GPS shadows or turbulence around buildings
- available safe options in event of control issues.

Once the risks to a particular operation have been identified the Chief Remote Pilot must implement sufficient strategies to mitigate the risks. Mitigation strategies are not limited to but include the following:

- Safety Crew to assist controller
- restricted flight and duty times
- use of smaller or lighter RPA
- restrictions on flight profile
- reduced maximum wind speed
- different propellers
- propeller guards
- vertical separation
- RPA speed restrictions
- reduced number of non-operational personnel within 30m of RPA
- pre-determined plan of action in case of control or other issues.

If the risk cannot be mitigated to a value that meets an acceptable level of safety or it is not possible to comply with a condition within the operations manual and any other instrument issued by CASA the task should not proceed.

The Chief Remote Pilot must also consider the overall risk where multiple risk factors have a high score.

Consent of third parties

Any operation within 30 to 15m of a person(s) requires the consent of each individual. The Chief Remote Pilot should note that a body corporate or any other entity cannot give such consent on behalf of any individual.

The Chief Remote Pilot may provide authorisation to a Remote Pilot to operate within 30m but no closer than 15m of a person(s) provided consent has been obtained from that person(s) and provided that the RP has a valid ReOC. If the RP is operating under an ARN and RPAS notification, RPA's must not be flown closer than 30m to any person not directly involved in the RPA's flight.

When seeking consent all individuals should be informed of the CASA regulation as written, and any additional risks identified by the operator that may be attributed to the operation of the RPA within 30m of a person. Whilst not a requirement, CASA recommends that a written briefing is provided to each person, and each person is asked to sign a consent form attached to the briefing. Gaining written consent in this way will ensure that should an incident or accident occur, the operator can demonstrate to any investigating authority that they had operated within the intent of the regulation.

Part 3 – DJI Phantom 4 Pro

3.1 Pre-flight & Post-flight Check

See Appendix 1.

3.2 Maintenance Schedule

All RPA's operated by the Department of Environment and Science will be maintained 'on condition'. The pre- and post- flight checklists will be performed before and after every flight and the Remote Pilot will note any possible maintenance issues.

The Maintenance Controller will monitor the failure rate of each RPAS element 'on condition' or subject to a maintenance schedule to ensure the RPAS Maintenance Schedule and Defect Log (Appendix 9) is effective in minimising unserviceable items and operational disruptions.

Variation of Maintenance Schedules

If operational experience identified that the existing maintenance schedule is deficient, the Maintenance Controller will vary the maintenance scheduling to ensure the ongoing reliability of the RPAS.

The Maintenance Controller must not allow the maintenance schedule to be less onerous than the manufacturer's specifications.

The Maintenance Controller will review each schedule periodically to ensure the most current instructions are in use.

Minimum Requirements for Maintenance Schedules

As a minimum, the RPAS maintenance schedules will include the following for each RPAS operated by the Department:

- Pre-flight/Post-Flight/General Routine Maintenance Checklist (Appendix 1)

3.3 RPAS relevant user Manual(s)

Copies of the RPA type user manual are kept in hardcopy in the office or can be also obtained from the web links below.

Aircraft type	Title	Web link
DJI Phantom 4 Pro	User manual v1.4	https://www.dji.com/phantom-4-pro/info#downloads
	Quick Start Guide v1.0	https://www.dji.com/phantom-4-pro/info#downloads
	Remote Controller Firmware v1.0	https://www.dji.com/phantom-4-pro/info#downloads
	Intelligent Flight Battery Safety Guidelines v1.0	https://www.dji.com/phantom-4-pro/info#downloads
	Online tutorials	https://www.dji.com/phantom-4-pro/info#downloads

3.4 Battery Management

RPA batteries will be maintained in accordance with the battery user manuals and completion of RPAS Battery Charge Log (Appendix 11).

Battery Fire

- Smother the battery fire with sand and monitor the fire until exhausted while drenching the battery and surrounding area with water and/or fire extinguisher/s as applicable to the surrounding hazards.
- WARNING – LiPo batteries can burn intensely and emit toxic fumes. Water can be used to put out the resultant fire caused by the battery but the battery itself can burn under water. Contact fire fighters if required DIAL 000.
- Never charge LiPo batteries unattended as this procedure creates a higher risk of battery fire. LiPo batteries can catch fire if the correct charging procedures are not followed or if they are damaged for example in a crash.
- In the event of a battery catch fire during flight, the RPA controller should fly the RPA to the safe landing area and land as soon as possible. If it is not safe to do this, the RPA controller should perform a combined stick movement to shut-down the motors with due regards for the location of the RPA so as not to increase the risk to persons or property.

Battery Care and Charge Use

- Only use the supplied Lithium Polymer (LiPo) chargers. Using the incorrect charger or charge rate may cause damage to batteries and is potentially a fire hazard.
- Batteries should always be balanced charged according to their associated specifications
- Never leave a charging LiPo battery unattended
- Never charge a LiPo battery that is warm or hot (ie straight after a flight), let it cool to below 30°C.
- Never charge in enclosed or hot conditions.
- If a battery becomes swollen during charging, flight operations, or any other time, it should be immediately disconnected and placed in a safe location for observation. A swollen battery should NEVER be used again and should be safely discarded. Swollen batteries should be replaced immediately.
- If wires are accidentally shorted or connected incorrectly, the battery should be disconnected immediately and placed in safe locations for observation for 15 minutes.

Battery Storage

- Store LiPo batteries at room temperature between 15 degrees and 27 degrees
- Do not expose batteries to direct sunlight for extended periods of time
- It is possible to transport or temporarily store batteries in warm temperatures such as that of a vehicle, however this should be minimised and wherever possible batteries should not be left unattended in the vehicle.

Battery Replacement

A LiPo battery should be replaced when:

- The manufacturer's recommended number of cycles has been exceeded (where this is specified)
- A pack loses 20% of its rated capacity
- The battery is physically damaged
- The battery exceeds 50 degrees Celsius during a flight
- External battery casing is punctured or pierced – this represents an extreme fire risk
- The battery appears to be swollen or “puffy”
- The battery pack has been involved in a significant crash

Batteries for disposal should be discharged using the LiPo charges (set to discharge - #V per cell). Once completed, batteries should be wrapped in a suitable LiPo bag and disposed according to local battery disposal requirements.

Battery Disposal

The safest way to render a damaged or expired battery inert is to place it in a large container of salt water and allow 2-3 days for it to fully discharge. This will also help prevent fires or explosions with damaged batteries. This procedure should be carried out in an outdoor location, well away from any flammable material.

Battery Records

A record of all charges and discharges of all batteries must be recorded in the RPAS Battery Charge Log (Appendix 11) and kept on file.

APPENDIX 1 – Pre-Flight/Post-Flight/General Routine Maintenance Checklist

Phantom 4 Pro series A/N NJA37100 ☐ A/N NJA37200 ☐ A/N NJA37300 ☐

Date _____

Pre/Post-Flight check ☐

OR

Maintenance check ☐

Pilot _____

Staff member conducting maintenance check:

Spotter _____

Flight Location and task _____

With RPA powered off

- ☐ Flight Authorisation Form and JSR completed
- ☐ Pre-Operational Briefing with spotter and any other crew
- ☐ Body inspected for frame damage
- ☐ Clean of dirt and grit
- ☐ Propellers are defect free and securely fixed to motors
- ☐ 4 spare propellers are available and defect free
- ☐ Check batteries are undamaged, charged and securely connected
- ☐ Check camera/accessories are securely fixed to frame
- ☐ Remove gimbal lock and camera lens cap
- ☐ SD Card placed in camera

With RPA powered on (See Launch Procedure – DJI Phantom 4 Pro)

- ☐ Check battery % and fill in Battery Charge Log
- ☐ Compass calibrated
- ☐ Configure “Return to Home’ position
- ☐ Minimum return height adjusted (Lowest elevation available is 50m)
- ☐ Check for RPA errors on controller

<p>Prior to flight</p> <ul style="list-style-type: none"> ☐ RPA has passed all technical checks ☐ Pre-Briefing with Flight Crew ☐ Flight zone clear of pedestrians ☐ Hover RPA at a low height, check/listen for defects and confirm expected joystick operation
<p>Post flight</p> <ul style="list-style-type: none"> ☐ Power off RPA, remote controller and tablet ☐ Replace gimbal lock and camera lens cap ☐ Inspect motors, propellers and landing legs for any damage ☐ Remove propellers and store in RPA case ☐ Check battery for signs of overheating, warping or swelling. ☐ Check battery levels ☐ Wipe body/propellers to clean off dirt, grit and bugs ☐ Check battery % and fill in Battery Charge Log ☐ Fill in RP log book and RPAS Time In Service Log ☐ Fill in Minor Occurrence Reporting form if required ☐ Fill in Maintenance Schedule and Defect Log if required ☐ Save data on SD card to appropriate folder in NQ Wildlife Shared Drive
<p>Maintenance</p> <ul style="list-style-type: none"> ☐ Inspect screws and make sure still tight ☐ Check for cracks in body/landing legs ☐ Test flight ☐ iPad charged and running latest RPA software ☐ Controller charged, undamaged, joysticks move smoothly, antenna deploys smoothly ☐ SD card empty
<p>Comments:</p>

Completed checklist to be saved on NQ Wildlife Shared Drive

APPENDIX 2 - Flight Authorisation Form

Task		
Date	Location	RPAS Make/Model/Asset Number
Task Description		
RP	2 nd RP (Optional)	Spotter

Operation details	
Local Area Frequencies (if required)	Emergency Contact Number
Notes (special operational procedures, permissions, etc.)	

Flight Authorisation		
Wildlife Operations Manager		Date
Chief Remote Pilot		Date

Completed Flight Authorisation Form to be saved on NQ Wildlife Shared Drive

APPENDIX 3 - Pre-Operational Briefing

The following briefing is to be given by the Remote Pilot to all persons involved in the RPAS operation. The Remote Pilot is also responsible to ensure the emergency contact telephone numbers are at hand. This briefing is to be included as part of a standard "Toolbox Talk" as conducted by the Department of Environment and Science prior to any activity involving risk. As such, any relevant items covered in a standard toolbox talk should be covered in this briefing.

The below checklist includes RPAS specific topics required to be covered.

Action	✓
Overview of the mission as planned	
Flight has been authorised by Chief Remote Pilot	
Pre-flight checks have been conducted	
Any specific tasking for crew member (e.g. person tasked with observing for people straying into the area of operation)	
Possible issues and identification of hazards associated with the mission including planned action	
How the remote pilot will communicate any problem and/or subsequent action	
Identification of alternate landing area	
Identification of a safe zone	
Action following an incident	
Notes/comments specific to operation:	
Emergency contact numbers	

APPENDIX 4 - Policy and Procedure Training Syllabus

This syllabus describes the flight induction, training and assessment activities to be undertaken by Departmental staff. The Chief Remote Pilot and person(s) nominated by the Chief Remote Pilot are permitted to provide internal training. Staff must already have an Aviation Reference Number and have notified CASA of their intention to operate a Departmental RPAS under the CASA approved documentation for the Department of Environment and Science. The aim of this section is to provide the trainee with the required skills, knowledge and attitudes to safely exercise the privileges of the RPA.

Required knowledge for the Policy and Procedure section of this training is:

- Relevant sections of Acts/Regulations for flight rules and aviation legislation
- CASA approved Departmental manuals
- Specific procedures including internal and external briefing requirements
- Maintenance procedures
- Safety and risk management strategies and WH&S
- Crew co-ordination and support crew duties

Relevant sections of Acts/Regulations for flight rules and aviation legislation

Staff conducting training will have an understanding of the Acts and Regulations, associated legislative instruments and guidance material that forms the aviation regulatory framework in Australia. This includes *Civil Aviation Act 1988* and associated regulations, Aeronautical Information Package published online by AirServices Australia, Manual of Standards and the Transport Safety Investigation Act and Regulations 2003. Links to appropriate legislation will be provided on the Department's NQ Wildlife Shared Drive. Staff will be required to read "Compliance with Regulations & No Fly Zones" in Phantom 4 Series Disclaimer and Safety Guidelines. This document will be available on the departments NQ Wildlife Shared Drive.

CASA approved Departmental manuals

Staff conducting training will have an understanding of the Department's CASA approved RPAS Operational Manual and its associated documents (Appendix 1-4, Schedule 1), including the Department's RPAS Operational Procedures (Library) and its associated documents (Appendix 1-11). Staff will follow procedure outlined in the Operational Manual: Compliance Declaration and will be added to Departmental distribution email list.

Specific procedures including briefing and authorisation requirements

Staff conducting training will have an understanding of the Department's SOP: 'Management of Remotely Piloted Aircraft Systems (RPAS)' which outlines identifying the need for RPAS operation and briefing upwards, approval of RPA use by Wildlife Operations Manager and CRP. As per Departmental policy, an audio Toolbox talk recording will be conducted prior to operation including RPAS specific briefing. Any incidents to occur will be reported immediately to the Chief Remote Pilot, or if away Wildlife Operations Manager following normal Departmental policy. Any minor occurrences are reported using the 'Minor Occurrence Reporting Form'. Any Immediately Reportable Matter (IRM) or Routinely Reportable Matter (RRM) will be reported to the Australian Transport Safety Bureau as applicable.

Maintenance procedures

Staff conducting training will have an understanding of the maintenance sections in the Department's RPAS Operations Manual where the Maintenance Controller undertakes quarterly scheduled maintenance and all other maintenance occurs as-needed. Pre-flight and post-flight checks occur before each flight with any defects reported to the Maintenance Controller.

Risk management strategies and WH&S

Staff conducting training will have an understanding of sections within the Department's RPAS Operations Manual and this document covering off on completion of Job Safety Assessments and undertaking risk assessments. In conjunction with the SOP, the Department also has a Risk Assessment and Safe Work Practice (SWP). Staff will be required to sign off on the SWP.

Crew co-ordination and support crew duties

Staff conducting training will be required to have an understanding of sections within the department's RPAS Operations Manual covering off on crew and organisational structure.

Competency Signoff

The Chief Remote Pilot or other RP approved by the CRP to conduct training will provide policy and procedure training to staff member. A competency form will be completed for each staff member and saved on file. Performance criteria for passing policy and procedure training will include:

- Knowledge of relevant aviation legislation and guidance material including Departmental documents
- Communication in the aviation environment – authorisation, reporting to (within the Department, to CASA and other regulatory bodies), operational briefings, radio (if applicable)
- Assess situation and make decisions
- Recognise and manage threats
- Recognise and manage errors
- Maintaining safety in the aviation environment – checklists, briefings, reporting occurrences and incidents
- Maintenance of RPAS

Training Competency – Policy and Procedure Training

Trainee & ARN _____ Instructor & ARN _____ Date _____

Completed CASA eLearning module “Remotely Piloted Aircraft (RPA)” Yes ☐ No ☐

Lesson Content <i>(Elements & Performance Criteria)</i>	Performance Standard Achieved Satisfactory / Non-Satisfactory / NA
Knowledge of relevant aviation legislation and guidance material including Departmental documents	
Communication in the aviation environment – authorisation, reporting to (within the Department, to CASA and other regulatory bodies), operational briefing	
Assess different optional situations and make decisions	
Recognise and manage threats	
Recognise and manage errors	
Maintaining safety in the aviation environment – checklists, briefings, reporting occurrences and incidents	
Maintenance of RPAS	

COMMENTS

Instructor's signature & date	Trainee's signature & date

This competency form is to be completed at the end of Departmental staff training – Appendix 4 of RPAS Operational Procedures (Library).

APPENDIX 5 - RPAS Type Training and Induction Syllabus

This syllabus describes the RPAS type training and assessment activities to be undertaken by Departmental staff. The Chief Remote Pilot and person(s) nominated by the Chief Remote Pilot are permitted to provide internal training. Staff must already have an Aviation Reference Number and have notified CASA of their intention to operate a Departmental RPAS under the CASA approved documentation for the Department of Environment and Science. The aim of this section is to provide the trainee with the required skills, knowledge and attitudes to safely exercise the privileges of the RPA DJI Phantom 4 Pro.

Flight training lessons include general handling, basic and advanced manoeuvres, procedures in the event of abnormal situations and emergencies.

Prior to inductee undertaking initial flight, the following Ground/Theory training must be undertaken with a departmental RPA user/Remote Pilot. All ground/theory induction must be undertaken in line with elements in the user manual.

Ground / Theory – As per user manual Phantom 4 Quick Start Guide and Disclaimer and Safety Guidelines. These documents will be available on the departments NQ Wildlife Shared Drive. Theory given under guidance of departmental RPAS user

- Description of RPAS and components
- Handling of RPAS and transportation
- Handling and charging of LiPo batteries
- Assembly/disassembly of the system including camera and gimbal, propellers and tablet removal/attachment from handset
- Detailed explanations on the use of the transmitter and operating frequencies, limitations
- Flight controls, sound and light signals
- Flight modes (Positioning Mode, Sports Mode, Attitude Mode)
- Pre-flight inspection
- Problem solving, fault analysis
- Pre- and post-flight procedures
- Crew management and responsibilities

Flight Exercises – Simple check lists with student to be walked through exercises in the field. Guidance of RPAS user.

- Range check
- Take-off and landing
- Practical flight exercises
- Automatic safety features
- Camera operation
- Normal and Non-Normal operations
- Safety

The Chief Remote Pilot or other RP approved by the CRP to conduct training will provide RPAS Type training and induction to staff member. A competency form will be completed for each staff member and saved on file. Performance criteria for passing RPAS type training and induction will include:

- Operational communication using radio if applicable
- Battery management – storage and charging
- Care, transportation, assembly/disassembly of RPAS
- Pre-flight actions and procedures
- Launch procedure
- Recognise and manage undesired RPAS state
- Crew management and responsibilities
- Practical flight exercises – start and stop engine, hover RPAS, climb RPAS, maintain straight and level flight, descend RPAS, turn RPAS, control RPAS at slow speeds, perform circuits and approaches, land RPAS
- Post-flight actions and procedures
- Recognise stall signs, missed landing, incipient spin
- Simulated – perform forced landing, recover from unusual flight attitudes, manage other abnormal situations
- Knowledge of normal and non-normal operations
- Knowledge of specialised operations, requirements and approvals
- Safety

Training Competency - RPAS Type Training and Induction

Trainee & ARN _____ Instructor & ARN _____ Date _____

Lesson Content <i>(Elements & Performance Criteria)</i>	Performance Standard Achieved Satisfactory / Non-Satisfactory / NA
Operational communication using radio (real or simulated) if applicable	
Battery management – storage and charging	
Care, transportation, assembly/disassembly of RPAS	
Pre-Flight actions and procedures	
Launch Procedure	
Recognise and manage undesired RPAS state	
Crew management and responsibilities	

Practical flight exercises <ul style="list-style-type: none"> • Start and stop engine • Hover • Climb • Maintain straight and level flight • Descend • Turn • Control at slow speeds • Perform circuits and approaches • Land • Camera operation 	
Post-Flight actions and procedures	
Recognise stall signs, messed landing, incipient spin	
Simulated – perform forced landing, recover from unusual flight orientation, manage other abnormal situations	
Knowledge of normal and non-normal operations	
Knowledge of specialised operations, requirements and approvals	
Safety	

COMMENTS

Instructor's signature & date	Trainee's signature & date

This competency form is to be completed at the end of Departmental staff training – Appendix 5 of RPAS Operational Procedures (Library).

APPENDIX 6 – Remote Pilot RPAS Log Book

Remote Pilot RPAS Personal Log Book									Name _____
Date	RPAS Make/Model	Location (City, State) Coordinates (Lat/Long)	Spotter/ Crew	Type of flight *	Flight Conditions **	Start Time	End Time	Total Duration of Flight	Post Flight Notes***
I certify that this record is true and correct to the best of my knowledge		Total Hours to Date: _____							
Signature _____ Date _____									

*Training, testing, operation

** Day/Night, Altitude, Weather

***Procedures, Manoeuvres, Maintenance concerns

APPENDIX 7 - Job Safety Assessment

A JSA must be performed during the feasibility planning phase to determine if the operation is viable. Note: the JSA may be applicable to a number of flights at the same location.

Pre-Operational Planning		Date:	
Task:	Location:	Check the following and address as needed.	
✓Sketch of area		Maps and charts available and checked	
		Weather, within limits for RPA and operation	
		Airspace classification and requirements	
		Notice to Airmen (NOTAM)s	
		Possibility of public moving into area	
		Footpath/right of way	
		Suitable take-off/land area including alternate	
		Ability to maintain 30M of public	
		Obstructions (buildings, trees) (‘Return to Home’ height setting)	
		Possible interference (Powerlines/antennas)	
		Ability to maintain visual line of sight	
		Remote Pilot’s ability matches location/task	
		Permission of any landowners	
		Privacy	
Local restrictions/by laws			
Need for signage			
Jobs specific threat and error management			

At location prior to operation				
New risks or hazards identified at the location (What can cause injury?)	Level of Risk – L, M, H	Controls to be Implemented (What will be done to make the site as safe as possible?)	Who will ensure this happens?	Is a Risk Assessment Required? <i>If RP is unable to mitigate the risk a RA is required</i>
Comments				
RP	Signature			
Spotter	Signature			

Return completed JSR to Chief Remote Pilot for filing on NQ Wildlife Shared Drive

APPENDIX 8 - RPAS Time in Service* Log

Phantom 4 Pro series A/N NJA37100 ☐ A/N NJA37200 ☐ A/N NJA37300 ☐

Flight #	Date	Pilot	Pre flight inspection completed (Initials)	Post flight inspection completed (Initials)	Operation summary (Including location, weather, wind, flight type and any issues – to be recorded separately in the Maintenance and Defects Log)	Battery #	Time in service* this operation
Total flights:					Total flight time on Battery 1:		
Total flight time:					Total flight time on Battery 2:		
					Total flight time on Battery 3:		

*Time in service is the time between motor(s) start up to motor(s) shutdown

APPENDIX 9 - RPAS Maintenance Schedule and Defect Log

Phantom 4 Pro series A/N NJA37100 ☐ A/N NJA37200 ☐ A/N NJA37300 ☐

Maintenance schedule. Phantom 4 Pro Series will undergo quarterly maintenance checks from the Maintenance Controller (see General Routine Maintenance checklist) and sent to DJI technicians after a crash or when equipment malfunctions. Outside of this, maintenance will be undertaken on an as-needed basis.

Date of Purchase: NJA37100 13/09/2017; NJA37200 31/05/2018; NJA37300 31/05/2018

Date:	Maintenance Description	Maintenance performed by:	Next maintenance planned on (date):	Comments

NB: Change props after 200 flights/if there are nicks in the blades/or it a prop strikes anything

Defect Log

Enter defects below and note clearly if it is to be rectified BFF (Before Further Flight).

Date	Description of defect or maintenance required	Name Signature	Rectification and/or maintenance carried out	Name Signature	Date

Alert any defects to the Maintenance Controller as a priority upon completion of operation.

Retain this document with the Flight Log Book as it forms part of the RPAS records.

APPENDIX 10 – RPAS Minor Occurrence Notification Form

RP _____ 2nd RP (if applicable) _____

Spotter _____

RPAS ID _____

Date flight undertaken _____

Any concerns/damage to RPAS/near-misses/incidents:

Time of occurrence: _____ Location (coordinates): _____

Give a brief description of the occurrence (describe tasks being performed and sequence of events):

Were any other persons involved? _____

Were any persons hurt? _____

Was first aid provided? _____

Was equipment/property damaged? _____

Were photos taken? _____

Was event/injury caused by an unsafe act (activity or movement) or an unsafe condition (machinery or weather)?

Was the RPAS flying near an aircraft? If yes, provide approximate distance: _____

Was the RPAS flying at a high altitude? If yes, provide approximate altitude: _____

Was the RPAS flying close to an airport/aerodrome (helipad, heliport, seaplane base etc)? _____

Did the RPAS fly close to or over the following zones?

Populated area _____

Home/private property _____

Crowd (Sporting event, concert, festival) _____

Moving vehicles, highways, busy streets, bridge _____

Return completed form to Chief Remote Pilot as a priority upon completion of operation. Any incidents including near-misses and accidents must be reported to Chief Remote Pilot immediately and briefed up through standard Department of Environment and Science reporting procedure.

APPENDIX 11 – RPAS Battery Charge Log

Phantom 4 Pro series A/N NJA37100 ☐ A/N NJA37200 ☐ A/N NJA37300 ☐

Enter battery charging below. Retain this document with the RPAS Time In Service Log as it forms part of the RPAS Records.

Phantom 4 Pro Series Battery One

Date	Charged	Take-off %	Landing %	Battery Life

Battery 1 Charge Cycles:

NB: **Discharge batteries to 8% and fully recharge every 20 cycles.** The typical lifetime of a LiPo battery is around 300-400 charge/discharge cycles. Store battery for long periods at ~50%. Keep from extreme temperatures and storage in direct sunlight.

Phantom 4 Pro Series Battery Two

Charged	Date	Take-off %	Landing %	Battery Life
Battery 2 Charge Cycles: NB: Discharge batteries to 8% and fully recharge every 20 cycles. The typical lifetime of a LiPo battery is around 300-400 charge/discharge cycles. Store battery for long periods at ~50%. Keep from extreme temperatures and storage in direct sunlight.				

Phantom 4 Pro Series Battery Three

Charged	Date	Take-off %	Landing %	Battery Life

Battery 3 Charge Cycles:

NB: Discharge batteries to 8% and fully recharge every 20 cycles. The typical lifetime of a LiPo battery is around 300-400 charge/discharge cycles. Store battery for long periods at ~50%. Keep from extreme temperatures and storage in direct sunlight.

APPENDIX 12 – Night VLOS Training Syllabus

Currently the Department of Environment and Science will not be operating Night VLOS training and no night operations will be allowed.

The below is for future reference.

N-VLOS-DS: Night visual line of sight - Description of training

1 Unit description

This unit describes the skills and knowledge required to operate an RPA at night time.

2 Elements and performance criteria

2.1 Pre-flight preparation

The remote pilot confirms that:

- (a) the RPA meets the equipment requirements for an N-VLOS flight.
- (b) a risk assessment is completed taking into account night visual conditions.

2.2 Night Operations

- (a) Perform all normal manoeuvres under N-VLOS conditions using either manual control or an AFMS.
- (b) Orient and navigate the RPA efficiently and safely at distance.
- (c) Maintain an effective lookout for other aircraft and take appropriate action to maintain separation and prevent conflict.

2.3 Night Landing

- (a) Lands the RPA safely and without damage within N-VLOS.

3 Range of variables

- (a) Various payloads and RPA configurations
- (b) Operations both in dark conditions and under artificial illumination
- (c) Various weather conditions

4 Underpinning knowledge of the following:

- (a) RPA equipment requirements
- (b) Human performance considerations
- (c) Night operation considerations
- (d) Knowledge of rules and considerations under artificial illumination
- (e) N-VLOS operational requirements for operations at a controlled or non-controlled aerodrome (if required)

N-VLOS-P: Night visual line of sight - Practical

Flight test requirements

- 1.1 A person operating under a night visual line of sight (N-VLOS) approval must demonstrate his or her knowledge of N-VLOS flight requirements as set out in clause 2 and competency, in the units of competency mentioned in clause 3, by performing

manoeuvres with an aircraft in the category he or she wishes to operate, within the accuracy/tolerances specified clause 3.

- 1.2 For subclause 1.1, a sustained deviation outside the applicable flight tolerance is not permitted.
- 1.3 For Schedule 3, if sufficient cross-wind conditions do not exist at the time of the flight test then, providing the examiner is satisfied the applicant's achievement records indicate that competency has been achieved during training, the element may be excluded from the flight test.
- 1.4 Note that flight tests elements for VLOS approval may be combined into a single test or conducted over a number of flights.

Knowledge requirements

- 2.1 The applicant must demonstrate his or his knowledge of the privileges and limitations of the rating and of the following topics to the chief remote pilot:
 - (a) RPA requirements for night flight
 - (b) Additional considerations for RPA flight at night (compared to a flight during the day)
 - (c) Applicable rules and considerations for flight at night under bright lights
 - (d) Knows the definition of 'night' for aviation purposes.
 - (e) Describe the considerations for carrying out an N-VLOS flight at a controlled or non-controlled aerodrome (if applicable)
 - (f) Understands some of the visual illusions and human performance limitations that may eventuate with N-VLOS flight.

Practical flight standards

- (a) Ensures the aircraft is fit to fly and equipped for night flight
- (b) Competently conducts all normal manoeuvres at night competently manually or with AFCS as applicable
- (c) Under manual or automated control is able to orient and navigate the aircraft efficiently and safely at a distance from the control station
- (d) Maintains an effective look-out for other aircraft and takes appropriate action to maintain separation and prevent conflict.

N-VLOS-T: Night visual line of sight - Theory

2. Flight at night Theory test

- 2.1 Enumerate the additional considerations needed to operate and RPA during an N-VLOS flight (compared to a flight during the day) under the following conditions:
 - a. Under bright lights
 - b. In an otherwise dark area.
- 2.2 Define 'night' for aviation purposes.
- 2.3 Describe the aircraft equipment requirements for an N-VLOS.
- 2.4 Describe the considerations for carrying out an N-VLOS flight at a non-controlled aerodrome.

- 2.5 Describe the additional considerations for coping with equipment failures at night.

3 Human Performance

- 3.1 Explain the relevant human performance and physiological limitations for the conduct of RPAS operations at night.
 - 3.1.1 Describe dark adaption of the eye and how long the eye takes to fully adapt to night conditions.
 - 3.1.2 Describe why lights have a red filter during night operations.

4 Risk Assessment – Night Operations

- 4.1 Describe and list any special precautions a remote pilot might take for a night operation.

Date : 6/08/2018 3:34:23 PM
From : "JACOBS Nigel"
To : "DUNSTAN Andrew"
Subject : FW: Drone Congress
Attachment : image001.png;image002.png;
Hi Andy,

I've rolled all the Raine Island drone footage I have into one video - saved here: <T:\Brisbane\Drone congress>. I thought it might be handy to play if people come over to talk to you about the use of drones on the island.

Take a look and let me know if there is anything you want edited out.

Cheers,



Nigel Jacobs

Senior Communications Officer

Communication Services | Corporate Communications
Department of Environment and Science

P 07 3339 5890 M (6) Personal info

Level 31 - 400 George Street BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001

Date : 6/07/2018 1:13:46 PM
From : "HEAD Damien"
To : "JACOBS Nigel" , "DUNSTAN Andrew"
Subject : FW: Drone footage
Attachment : image001.png;image003.png;image004.png;image006.png;image009.png;
Nigel

Can you give us more detail on where the convention is being held and what it is about



Damien Head
A/Executive Director
Great Barrier Reef - Marine Parks – Coastal - Islands
Queensland Park and Wildlife Service
Department of Environment and Science
M: (6) Personal info
E: Damien.head@des.qld.gov.au

From: DUNSTAN Andrew
Sent: Friday, 6 July 2018 1:09 PM
To: HEAD Damien <Damien.Head@des.qld.gov.au>; JACOBS Nigel <Nigel.Jacobs@des.qld.gov.au>
Subject: RE: Drone footage

Yes fine to attend and would be keen to hear other work and to contribute

Cheers

Andy

From: HEAD Damien
Sent: Friday, 6 July 2018 1:04 PM
To: JACOBS Nigel
Cc: DUNSTAN Andrew
Subject: RE: Drone footage

Andy do you have any interest or capacity? Some of the footage is off Raine.

Damien



Damien Head
A/Executive Director
Great Barrier Reef - Marine Parks – Coastal - Islands
Queensland Park and Wildlife Service
Department of Environment and Science
M: (6) Personal info
E: Damien.head@des.qld.gov.au

From: JACOBS Nigel
Sent: Friday, 6 July 2018 12:15 PM
To: HEAD Damien <Damien.Head@des.qld.gov.au>
Subject: RE: Drone footage

Hi Damien,

The convention will be open to the public on Friday 10 August from 2pm-7pm, and the organisers have asked if it would be possible for us to have some staff on hand to answer questions about our use of drones.

Is there any chance any of the rangers from the drone projects might be in town then and could come down, even if it's just for a couple of hours?

Cheers,
Nigel

From: HEAD Damien
Sent: Monday, 2 July 2018 10:36 AM
To: JACOBS Nigel
Subject: RE: Drone footage

Nigel

No concern with use of that footage. Looks good.



Damien Head
A/Executive Director
Great Barrier Reef - Marine Parks – Coastal - Islands
Queensland Park and Wildlife Service
Department of Environment and Science

M: 6) Personal info
E: Damien.head@npsr.qld.gov.au

From: JACOBS Nigel
Sent: Friday, 29 June 2018 5:05 PM
To: NEWMAN James <James.Newman@des.qld.gov.au>
Subject: Drone footage

Hi James,

I am pulling together a short video for a convention on drones being held in Brisbane in August. Eddie Adams, Mark Cody and Kim Finlay all kindly contributed footage and info (I believe they're all from your region).

The video is saved here [T:\Brisbane\Drone congress](#). Can you please take a look and confirm you're happy with the video before I send it to my Director for approval?

Cheers,



Nigel Jacobs
Senior Communications Officer
Communication Services | Corporate Communications
Department of Environment and Science

P 07 3339 5890 M: 6) Personal info
Level 31 - 400 George Street BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001

Date : 29/01/2019 12:30:30 PM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew" , "HURREN Kerry-Anne" , "BIKAUNIEKS Paul"
Cc : "SCHAPER Dan"
Subject : FW: Drone registration consultation opens – have your say [SEC=UNCLASSIFIED]
Attachment : image001.png;

From: ORCHARD Richard
Sent: Tuesday, 29 January 2019 12:22 PM
To: SCHWARZROCK John <John.Schwarzrock@des.qld.gov.au>; BALL Tina <Tina.Ball@des.qld.gov.au>; LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>; ORGILL Dave <Dave.Orgill@des.qld.gov.au>; BOXER Craig <Craig.Boxer@des.qld.gov.au>; CENTURINO Patrick <Patrick.Centurino@des.qld.gov.au>; HESS Lee <Lee.Hess@des.qld.gov.au>; BADDILEY Craig <Craig.Baddiley@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>; DYBALL Alan <Alan.Dyball@des.qld.gov.au>; BATES Andrew <Andrew.Bates@des.qld.gov.au>; MATTHEWS Galen <Galen.Matthews@des.qld.gov.au>; CAVENDISH Peter <Peter.Cavendish@des.qld.gov.au>; LOW Jesse <Jesse.Low@des.qld.gov.au>; HEMSON Graham <Graham.Hemson@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Subject: FW: Drone registration consultation opens – have your say [SEC=UNCLASSIFIED]

Hi all,
I don't know how many of you are using RPAs (drones) or who is on the CASA mail list but if you haven't received the email below you may like to have a look or forward it to your drone users as the changes may have an impact on your operations.

I will be making a submission on behalf of MBMP but am happy to include the rest of the GBRPMR, if you have any suggestions you would like me to add can you please get them to me before 18th February or you can make your own submissions.

Cheers,
Richard.



Richard Orchard
Senior Ranger
Queensland Parks and Wildlife Service | Great Barrier Reef Region
Department of Environment and Science

P 07 31012090
34 Trafalgar Street, Manly, 4179
PO Box 5178, Manly, 4179

From: CASA mailing lists <mailing.service@casa.gov.au>
Sent: Tuesday, 29 January 2019 11:54 AM
To: ORCHARD Richard
Subject: Drone registration consultation opens – have your say [SEC=UNCLASSIFIED]

Drone registration consultation opens – have your say

Consultation is now open on CASA's proposed [new registration and accreditation scheme for drones](#).

We are introducing a remotely piloted aircraft (RPA) registration and RPA operator accreditation requirement as a way of monitoring the safe and lawful operation of RPAs, commonly known as drones – and we want your feedback on the details of the scheme.

The registration and accreditation requirements are proposed to apply (with certain exceptions) to drones more than 250 grams operated recreationally and all drones operated commercially, regardless of weight.

The requirements are not proposed for drones lighter than 250 grams operated recreationally or model aircraft flying at CASA-approved model airfields.

Accreditation would be free and involve watching a video and answering a quiz on drone rules. Separate accreditation courses would be available for recreational operators and those operating excluded RPA. Accreditation would be valid for 3 years.

The cost of registration has yet to be determined by CASA but is likely to be a \$20 or less annual fee (per person) for

recreational drones and for some model aircraft operators. There would also be an annual registration fee likely to range from \$100 to \$160 per drone for each commercial drone.

What happens next

CASA reviews every submission and will publish a summary of consultation on your feedback. This will inform the introduction of the registration and accreditation scheme.

Summary of previous consultation

CASA has also published the [summary of your feedback](#) to a recent consultation on proposed new rules for commercial and professional drone operators - Proposed Part 101 (Unmanned aircraft and rockets) Manual of Standards 2018.

For further information:

rpas@casa.gov.au.

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To update your preferences and to unsubscribe visit [this link](#)

POWERED BY [PHPList](#)

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Date : 27/11/2019 9:57:19 AM

From : "HURREN Kerry-Anne"

To : "BRADSHAW Steven" , "COOK Tayce" , "TEALEBROWNE Callum" , "DUNSTAN Andrew"

Cc : "ARMSTRONG Warrick" , "HESS Lee" , "BILLETT Chris"

Subject : FW: Drone

Attachment : image001.png;image002.png;image005.png;image006.png;

FYI – the Mavic Pro is being replaced with the Mavic 2 Pro. Graham Hemson will have it on loan for the Coral Sea trip before returning it to the Management Unit.

It will need to be added to the hundreds of excel spreadsheets that are going around recording drone details! Or maybe there might be one collective one by then, who knows. Either way, will need to make sure it is registered and covered under Departmental insurance.

Cheers,

K-A

From: HEMSON Graham

Sent: Wednesday, 27 November 2019 9:48 AM

To: HURREN Kerry-Anne

Cc: O'GRADY Fiona; HESS Lee

Subject: RE: Drone

Yes sorry right you are. Will do.



Graham Hemson PhD

Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.
QPWS & Partnerships

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: HURREN Kerry-Anne

Sent: Wednesday, 27 November 2019 9:47 AM

To: HEMSON Graham

Cc: O'GRADY Fiona; HESS Lee

Subject: RE: Drone

Hi Graham,

I'm slightly confused as I think that's the same link I sent you but either way, yes, Mavic 2 Pro please. I probably wasn't clear in my description by leaving the 2 out.

And yes to the fly more kit. We did get one with the last Mavic but some of the accessories such as one of the batteries was damaged in the 'crash' so won't hurt to have another full kit. Then we know everything fits as well.

Thank you!

From: HEMSON Graham

Sent: Wednesday, 27 November 2019 9:33 AM

To: HURREN Kerry-Anne

Cc: O'GRADY Fiona; HESS Lee

Subject: RE: Drone

I was going to upgrade you to the Mavic 2 Pro <https://www.jbhifi.com.au/products/dji-mavic-2-pro-4k-drone> and get the <https://www.jbhifi.com.au/products/dji-mavic-2-fly-more-kit>

Are you Ok with that?



Graham Hemson PhD

Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.
QPWS & Partnerships

P 07 4936 0113 M 6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: HURREN Kerry-Anne

Sent: Wednesday, 27 November 2019 9:30 AM

To: HEMSON Graham

Cc: O'GRADY Fiona; HESS Lee

Subject: Drone

Hi Graham,

Lee asked me to follow up on the ops drone situation following your request to borrow one.

There are two drones that sit with the management unit which are:

- Matrice 200 (generally stays on Reef Ranger, mostly used for Raine Island)
- Mavic Pro (recently made a suicide attempt by plunging itself in to the ocean I am told)

The Raine Island project also have another Mavic Pro but I assume they will be using that on the upcoming Raine Island trips along with the Matrice.

As far as I am aware, the Mavic Pro that belongs to the management unit has not been replaced. Tayce was responsible for it's replacement and is currently on leave. Lee advised that you suggested you could purchase the replacement for you to use and return to ops once you are done. He asked that I make the call on what it is replaced with. Following discussions with the Cairns drone pilots, I believe it should be replaced it with another Mavic Pro such as this one <https://www.jbhifi.com.au/products/dji-mavic-2-pro-4k-drone>

Feel free to give me a call if you need any further information.

Thank you,
Kerry-Anne



Kerry-Anne Hurren
A/Project Officer
Great Barrier Reef & Marine Parks I QPWS and Partnerships
Department of Environment & Science

M 6) Personal info E Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

I acknowledge the Traditional Owners on whose land and sea country I work and live. I pay my respects to all elders past, present and future.

Date : 23/10/2019 8:48:09 AM

From : "COOK Tayce"

To : "BRADSHAW Steven" , "HURREN Kerry-Anne" , "TEALEBROWNE Callum" , "DUNSTAN Andrew" , "RALPH Tom" , "CENTURINO Patrick"

Subject : FW: Drones

Attachment : image001.jpg;image003.png;image005.jpg;image006.png;

Heya Team

Julie is tracking down our drone licence details to put on the bird ethics permits. Do you guys know if we have kept this info anywhere?

If not should we?

Otherwise if you want, send me your License numbers and I can collate and pass on the Julie.

Please pass on to anyone else I may have missed.

Cheers

Tayce

From: DUTOIT Julie

Sent: Tuesday, 22 October 2019 4:11 PM

To: COOK Tayce

Subject: Drones

Hi Tayce – Moreton Bay told me that their operators only hold ARN (Aviation Reference number). They are not required to hold RePL (Remote pilot licence) as they only fly drones under 2kg.

Ours is more than 2kg right? Do you and others have both? If so do we have a list somewhere of what everyone's reference and licence numbers are?

Regards,



Note that I no longer have a desk phone – please use work mobile below!

Julie Dutoit

Conservation Officer

Technical Support

QPWS & Partnerships

Department of Environment and Science

P4(6) Personal information
julie.dutoit@des.qld.gov.au

100-106 Tingira Street

CAIRNS QLD 4870

PO Box 685

Bungalow QLD 4870

Date : 4/11/2019 1:20:02 PM

From : "COOK Tayce"

To : "HURREN Kerry-Anne" , "BRADSHAW Steven" , "TEALEBROWNE Callum" , "DUNSTAN Andrew" , "RALPH Tom" , "CENTURINO Patrick"

Cc : "ALDERSON Tina"

Subject : FW: Enquiry in relation to DES UAV/UAS (drone) Program and appropriate cover

Attachment : 2018-19 Drone Asset Schedule.xlsx;image002.jpg;image003.png;image004.png;image005.png;image006.png;

Hey Guys

We may need to consider adding our drones to the insurance register for future issues ect.

Andy – have you done this previously for the drones you have purchased?

Cheers

Tayce

From: GLOSKO Brett

Sent: Monday, 4 November 2019 1:08 PM

To: COOK Tayce

Subject: FW: Enquiry in relation to DES UAV/UAS (drone) Program and appropriate cover

F.Y.I.



Brett Glosko
Program Manager & Chief Remote Pilot
Remotely Piloted Aircraft Systems
Waste Operations / Waste and Recovery
Environmental Services and Regulation
Department of Environment and Science

P 07 5626 6840
ARN 1057139
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

From: Serge Jacobs <serge.jacobs@qgif.qld.gov.au>

Sent: Thursday, 18 October 2018 12:57 PM

To: GLOSKO Brett

Cc: OIC - QGIF

Subject: RE: Enquiry in relation to DES UAV/UAS (drone) Program and appropriate cover

Good afternoon Brett.

Thank you for your enquiry regarding the cover afforded for drones.

You are correct in your understanding of our website in that QGIF does cover drones under the property and general liability sections. The information required is detailed on our drone Asset Schedule which is attached. As for any undertaking it is simply that you understand and adhere to CASA regulations. Hold the appropriate licensed id necessary and know where and when you can fly your drones. You may wish to confer with Qld Police who have been training other State Agencies on the use of drones as well as maybe set up an Agency policy on the use of drones

I trust the above will be of assistance but should you have any additional concerns please do not hesitate to contact me

Regards

Serge Jacobs
Manager Underwriting
Queensland Government Insurance Fund
Queensland Treasury
Level 26, 1 William Street, Brisbane QLD 4000
Phone: 3035 6369 (dial full number)
Mobile: **Personal**
Email: serge.jacobs@qgif.qld.gov.au
Web: www.qgif.qld.gov.au



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From: OIC - QGIF

Sent: Wednesday, 17 October 2018 8:42 AM

To: Serge Jacobs <serge.jacobs@qgif.qld.gov.au>

Subject: FW: Enquiry in relation to DES UAV/UAS (drone) Program and appropriate cover

Hello Serge

Can you please reply to Brett's enquiry regarding drones.

Regards & thanks,

Kym Ng
Insurance Officer
Queensland Government Insurance Fund (QGIF)
Queensland Treasury
L26, 1 William Street, Brisbane
Phone: 07 3035 6367
Email: kym.ng@treasury.qld.gov.au
Web: www.treasury.qld.gov.au

Great state.
Great opportunity.
And a plan for the future.



From: GLOSKO Brett [<mailto:Brett.Glosko@des.qld.gov.au>]

Sent: Tuesday, 16 October 2018 5:46 PM

To: OIC - QGIF <qgif@qgif.qld.gov.au>

Subject: Enquiry in relation to DES UAV/UAS (drone) Program and appropriate cover

Dear QGIF,

I have been tasked to implement a UAV/UAS (drone) program on behalf of the Department of Environment and Science (DES), including having DES certified as an RPA operator by the Civil Aviation Safety Authority (CASA).

I have read your web based information, and it appears it suggests that UAV's are covered by the agencies insurance cover under the property and general liability sections, however the reason for my e-mail to is obtain any specific information required, or undertake any other specific task/s in order to have our soon to be purchased remotely piloted aircraft and associated equipment included in our agencies cover, and ensure our CASA approved flying operations (and pilots) are also covered as required.

Can I please request a response and/or contact with an appropriate representative to ensure I have all required information and understanding to ensure DES holds all required cover for these operations and associated equipment.

Many thanks.



Brett Glosko
Compliance Delivery Manager (Operation TORA)
Industry & Development and South-East Queensland Compliance
Environmental Services and Regulation
Department of Environment and Science

P 07 5626 6840
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

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Date : 8/03/2019 2:23:03 PM

From : "CAMBOURN Neil"

To : "DUNSTAN Andrew"

Subject : FW: Operational SMT 20 September: Drone presentation

Attachment : EPA DRONE ehacing Investigations

2018.pdf;image001.png;image005.png;image009.jpg;image003.png;image007.png;image008.png;image010.png;image013.png;image014.png;



Neil Cambourn

Executive Director

Great Barrier Reef - Marine - Coastal - Islands

Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 3199 7518 M p4(6) Personal inform

Level 5, 400 George Street, Brisbane QLD 4000

From: CAMBOURN Neil

Sent: Monday, 8 October 2018 2:00 PM

To: CLARE Geoff <Geoff.Clare@des.qld.gov.au>

Subject: FW: Operational SMT 20 September: Drone presentation

Hello there! This is the drone presentation I mentioned a week or so ago.

While we had the benefit of someone talking to it, and it has mainly an environmental compliance context, you can see that there is scope for application to a lot of our business by using the same sort of software from Propelleraero.

For example, forest harvest areas, quarries, burn scars, clearing, landslides (and damage assessments following disasters), reveg, weed encroachments etc.

Cheers, Neil



Neil Cambourn

Acting Executive Director

Energy, Extractive and South West Queensland Compliance

Environmental Services and Regulation

Department of Environment and Science

P 07 3199 7518 M p4(6) Personal inform

Level 8, 400 George Street, Brisbane QLD 4000

From: STEGEMANN Rachael

Sent: Monday, 8 October 2018 1:16 PM

To: CAMBOURN Neil <Neil.Cambourn@des.qld.gov.au>

Cc: LINO Starsky <Starsky.Lino@des.qld.gov.au>

Subject: FW: Operational SMT 20 September: Drone presentation

Hi Neil,

Please find attached as requested the presentation on drones provided at Operational SMT by the EPA South Australia.

Kind Regards,



Rachael Stegemann

Executive Officer

Energy, Extractive and South West Queensland Compliance | Brisbane

Department of Environment and Science

P 07 3330 5073 M p6) Personal inf

Level 8, 400 George Street, Brisbane 4001

GPO Box 2454 Brisbane 4001

From: DEHAAN Rebecca

Sent: Monday, 8 October 2018 10:22 AM

To: HERTSLET Bryce; STEGEMANN Rachael

Cc: SIMMONS Kylie

Subject: RE: Operational SMT 20 September: Drone presentation

Hi Rachael,

Please find attached a pdf version of the presentation that was given at SMT, by Kevin Rowley, EPA SA.

Kind regards,

Rebecca DeHaan

A/Manager

Strategic Compliance, Intelligence & Investigations

File F



Strategy, Support and Compliance
Environmental Services and Regulation
Department of Environment and Science

P 07 3330 5622
E rebecca.dehaan@ehp.qld.gov.au
Level 7 | 400 George Street | Brisbane

Please note: I work Monday, Wednesday and Thursday

...make the move

From: HERTSLET Bryce
Sent: Friday, 5 October 2018 11:56 AM
To: STEGEMANN Rachael <Rachael.Stegemann@des.qld.gov.au>; DEHAAN Rebecca <Rebecca.DeHaan@des.qld.gov.au>
Cc: SIMMONS Kylie <Kylie.Simmons@des.qld.gov.au>
Subject: RE: Operational SMT 20 September: Drone presentation

Thanks Rachael

Unfortunately I do not have a copy. It was organised by Bec DeHaan at SSC. I have included Bec in this email so that she can respond to you directly.



Bryce Hertslet
Acting Executive Officer
Industry, Development & Southeast Queensland Compliance
Environmental Services and Regulation
Department of Environment and Science

P 07 3330 6335
Level 8, 400 George Street, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001



From: STEGEMANN Rachael
Sent: Friday, 5 October 2018 11:42 AM
To: HERTSLET Bryce
Cc: SIMMONS Kylie
Subject: FW: Operational SMT 20 September: Drone presentation

Hi Bryce,

I'm contacting you on behalf of Neil Cambourn, who was interested in obtaining a copy of the presentation provided on drones by Kevin Rowley at the Op SMT meeting on 20 September.

I've asked Starsky for a copy of the presentation, however he didn't have a copy.

Would you have an appropriate contact who might be able to track down a copy of the presentation?

Kind Regards,



Rachael Stegemann
Executive Officer
Energy, Extractive and South West Queensland Compliance | Brisbane
Department of Environment and Science

P 07 3330 5073 M 6) Personal info
Level 8, 400 George Street, Brisbane 4001
GPO Box 2454 Brisbane 4001

Date : 10/04/2019 12:10:57 PM

From : "ALDERSON Tina"

To : "ROBERTSON Katharine" , "DUNSTAN Andrew"

Subject : FW: Raine drone work

Attachment : image001.jpg;image003.png;image002.png;image004.jpg;image007.png;

See below from Julie (and Graham and Doogs) re birds and drones

Are you both able to respond where you can please

Ta

Tina



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>

Sent: Wednesday, 10 April 2019 11:44 AM

To: ALDERSON Tina

Subject: Raine drone work

Hi Tina – I had a meeting yesterday with Andrew and Graham to work out where we are at with the Acoustic work.

We need to start comparing the following 4 types of counts to see if we can get any correlations between all the technology being trialled:

- Drone image - automated counts
- Drone image - manual counts
- Acoustic sound recording counts
- On ground manual counts by staff

We need to know:

- How many (and which date) drone surveys have corresponded with acoustic and/or full island bird counts?
- Have you got any figures that the automated counting program has given us to correspond with the drone footage?
- Can we get a copy of the drone footage so that we can have a go at counting around the acoustic monitors?
- I'm also missing the last acoustic counts – but I think that Katherine told Sally that she needed to confirm a couple of GPS points - so I'll follow up with her when she's back next week.

Regards,



Julie Dutoit

Conservation Officer

Technical Support

QPWS & Partnerships

Department of Environment and Science

P 4047 9604

julie.dutoit@des.qld.gov.au

100-106 Tingira Street

CAIRNS QLD 4870

PO Box 685

Bungalow QLD 4870



Date : 17/08/2018 1:48:54 PM

From : "ALDERSON Tina"

To : "ROBERTSON Katharine" , "DUNSTAN Andrew"

Subject : FW: Raine Island: Independent Assessment of Monitoring Program

Attachment :

ProjectSummary_v1.docx;image001.jpg;image002.jpg;image003.jpg;image004.jpg;image005.jpg;image006.jpg;image007.jpg;image008.jpg;image009.jpg;

Andy and Katharine

This is the meeting invite I forwarded to you both for the 29th

We will need to get them the info they need if possible before hand

Tina

From: Erin Woods [mailto:ewoods@barrierreef.org]

Sent: Tuesday, 14 August 2018 2:18 PM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Cc: Erin Peterson <erin.peterson@qut.edu.au>

Subject: Raine Island: Independent Assessment of Monitoring Program

Hi Tina,

In a meeting earlier this year with GBRF and QPWS (about February), it was discussed and agreed to have an independent assessment of monitoring program (external review of monitoring data, for refinement, articulation of success metrics and how this can be effectively used to tell a positive story).

GBRF has reached out to QUT (Erin Peterson, CC'd in this email) and they are willing to assist. Please find attached draft scope for discussion. It would be good to arrange a discussion with Erin and yourself (also assume Andy should be included, but I'm unclear and will leave that to you as the PM). Perhaps we could arrange this for when you are in Brisbane prior to the Turtle Symposium in Bundaberg?

Tina, can you please confirm the date you will be in Brisbane? I think it was 6 or 7 September.

Erin Peterson – please let me know if you are available 6 or 7 September.

Thank you,

Erin

Erin Woods

Project Officer | Great Barrier Reef Foundation

e ewoods@barrierreef.org | barrierreef.org

Level 13, 300 Ann Street, Brisbane QLD 4000 | GPO Box 1362, Brisbane, QLD 4001



Raine Island Turtle Analysis

Project Summary

The Raine Island Recovery Project is a five year, \$7.95 million collaboration between BHP, the Queensland Government, the Great Barrier Reef Marine Park Authority, Traditional Owners and the Great Barrier Reef Foundation (GBRF) to address issues of low green turtle nesting and hatching success and high adult turtle mortality.

Changes in the island's landscape have caused tidal inundation, killing newly laid eggs which cannot survive underwater. It has also caused as many as 2,000 adult turtles in a season to die from overturning and entrapment in rocky cliffs and from heat exhaustion on the nesting beach.

The Raine Island Recovery Project aims to protect and restore the island's critical habitat to ensure the future of key marine species, including green turtles and seabirds.

Main Question

1. Do restoration efforts such as re-profiling the beach positively affect nesting and hatching success, given the number of turtles arriving;

The GBRF has asked Queensland University of Technology to:

1. Review the data:
 - a. Are the data adequate for answering the question above using the data? If not, what should be collected?
 - b. Are there other questions that we can answer using these data?
2. If the data are suitable, fit statistical models to assess turtle hatchling and nesting success:
 - a. Can we identify clear success metrics such as nesting and hatching success, as well as the time of the adults on the beach while nesting?
3. Review the design of the monitoring program and look for ways to optimise data collection:
 - a. Make recommendations about the most important things to measure going forward when there are fewer resources for monitoring;
4. Automated monitoring using sensors and drones
 - a. Host a workshop to discuss feasible options for automated turtle monitoring on Raine Island.

The GBRF will ensure that QUT has:

1. Turtle data, including
 - a. Hatchling and nesting success, and the number of turtles arriving.
 - b. Locations of the restoration activities.
2. Involvement from turtle biologists who have collected the data and/or been involved in the Raine Island Restoration Project.

Milestones:

	Milestone	Date
1	Review data	
2	Analyse data	
3	Review program design	
4	Automated Monitoring workshop	

Published on DES Disclosure Log
RTI Act 2009

Date : 14/10/2019 3:50:18 PM

From : "DUTOIT Julie"

To : "DUNSTAN Andrew"

Subject : FW: Raine Island Acoustic Posts

Attachment : image003.png;image002.png;

Hi Andy – I really need an update on this work and some drone images that we can start looking at to compare with on ground counts!

If there is a hold-up with this project can you please let me know what the issue is?

Note that I no longer have a desk phone – please use work mobile below!

Regards,

Julie Dutoit

p4(6) Personal inform

From: DUTOIT Julie

Sent: Monday, 5 August 2019 1:16 PM

To: DUNSTAN Andrew

Cc: MCDOUGALL Andrew (Rockhampton)

Subject: RE: Raine Island Acoustic Posts

Hi Andy – How did we go with this?

Did you talk to Marshall about providing these images with 5 m extra around the acoustic circles and the acoustic circles drawn on the images?

Regards,

Julie Dutoit

4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Wednesday, 12 June 2019 4:08 PM

To: DUTOIT Julie

Subject: RE: Raine Island Acoustic Posts

Cool thanks

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>

Sent: Wednesday, 12 June 2019 4:01 PM

To: DUNSTAN Andrew

Subject: RE: Raine Island Acoustic Posts

Hi Andy – 10m radius is the standard circle size that Conservation Metrics have requested.

We have used the same in the cap cays and Michaelmas etc... so no talk of a change.

Regards,

Julie Dutoit

4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Wednesday, 12 June 2019 3:15 PM

To: DUTOIT Julie; DSOUZA Marshall; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina

Subject: RE: Raine Island Acoustic Posts

Hi guys

Shouldn't be a problem and will talk with Marshall and sort a plan while at Raine next week. The increased image size won't reduce resolution. Before we go further down this track are we sure of the 10m radius circle as being right for this task and where did this number come from and is it likely to change with advice from Conservation Metrics again? Just checking!!

Cheers

Andy

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>

Sent: Wednesday, 12 June 2019 1:57 PM

To: DUNSTAN Andrew; DSOUZA Marshall; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina

Subject: RE: Raine Island Acoustic Posts

Hi all – Andrew and I have been discussing the images.

We also recently spoke with Conservation Metrics in the States about their requirements for analysing the acoustic data.

One thing they mentioned was that it would be helpful for them to see the photos that correspond to the acoustic data and also to see some of

the land surrounding the acoustic circles. This may allow them to understand any larger than expected readings they might be getting from birds nesting just outside of the acoustic circles.

So if possible it would be great if the images could be expanded to include about 5m extra around the acoustic circles. This would mean that the images don't need to be cut out but we would need the original acoustic circle drawn on them. Just 1 question re this – having larger areas in the images wouldn't decrease the resolution/quality would it?

We agree that the mapping service shouldn't be necessary for the acoustic process. But could you let us know what is involved and could we request this down the track if needed. It would possibly only be images will really dense numbers of birds (eg: frigate colony) where we might need to use a mapping service. But we may also be able to make do with a function in 'paint' to help us count these.

However, when the time comes for us to count the next whole island image... then we would like to use the mapping service for that please. Could you give us an update on the last whole island analysis... do we have an extrapolated count for the bird numbers across the whole island yet?

Regards,
Julie Dutoit
4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Tuesday, 4 June 2019 10:55 AM
To: DSOUZA Marshall; DUTOIT Julie; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina
Subject: RE: Raine Island Acoustic Posts

Brilliant job Marshall, thanks very much for that. You're a legend! Don't think the mapping service is needed for these as can be done fairly quickly and easily do you think Julie/Andrew?

Cheers

Andy

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>
Sent: Tuesday, 4 June 2019 9:47 AM
To: DUNSTAN Andrew; DUTOIT Julie; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina
Subject: RE: Raine Island Acoustic Posts

Hi Andy and Julie,

Andy – I've updated the below link to include images from an automated process made to extract a 20m diameter circle based on the collected coordinates of acoustic posts. Some posts in images from 23/05/2018 and 09/12/2018 posts are slightly off centre due to the accuracy of the orthoimages and I will adjust these manually. I also wanted to check if the circle cutout was fine or was extending the area to view outside the circle required (with an outline indicating 20m)?, as I will need to alter the processing.

\\LANDS\Data\DNRME\Shared Transfer\Brisbane\RIRP\Drone_Ortho_Extracts

Julie – the accuracy of the ortho images are based on how well the coordinates are defined on ground and how well the photogrammetry process in stitching images can resolve geometry between the same point in each photo (dependant on a few factors in image collection) an exact measure of accuracy cannot be measured as check points to assess distance between observed and derived location were not collected, but a general estimate can be made from the deviation from centre of each image to the base of the posts from images in the above link.

As another solution for counting, the use of a web based mapping service similar to the one provided last year for bird counting may be created (linked below). This would include 20m outlines and labels of acoustic posts as well as tools for summarising counts in a defined area for each identified species. I will just need to check with our imagery team to host the orthoimages on a server in order to view them online.

<https://portal.information.qld.gov.au/arcgis/apps/webappviewer/index.html?id=8f592f62400c4ffb9b50702b97a09794>

Cheers,

Marshall

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Friday, 31 May 2019 11:55 AM
To: DUTOIT Julie; DSOUZA Marshall; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina
Subject: RE: Raine Island Acoustic Posts

Hi Julie, yeah the resolution for the images from the June trip with Matrice200 are great but as you can see the ones for the Spark and Mavic not good enough for bird ID. April 2019 image will also be good as it was with the Matrice 200 as will future ones. I think you will be able to just insert a circle within the 20 x 20 box to its edges to provide this area. As you say some images do not have the logger exactly in the centre and maybe Marshall can either adjust the position of the square to ensure this happens or maybe easier to do a 25 x 25m square and then the 20m diameter circle can be overlaid by you with the logger central? What do you think Marshall?

Cheers

Andy

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>

Sent: Friday, 31 May 2019 11:36 AM

To: DUNSTAN Andrew; DSOUZA Marshall; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina

Subject: RE: Raine Island Acoustic Posts

Sorry me again – I also wondered what the accuracy should be on these?

Some of the acoustic monitors are exactly in the centre of the image... but some seem to be 1 or 2 cm out (when I'm viewing the images on my screen as 24 x 24cm).

Regards,
Julie Dutoit
4047 9604

From: DUTOIT Julie

Sent: Friday, 31 May 2019 11:33 AM

To: DUNSTAN Andrew; DSOUZA Marshall; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina

Subject: RE: Raine Island Acoustic Posts

Hi Andy / Marshall – is it possible to get 20m diameter circles drawn around the acoustic monitors as this will make things more accurate for doing bird counts?

Also I'm concerned about the image quality. Would this be the best quality we have? I was expecting the same resolution as that image we have for Raine that we used for the computer learning / bird recognition project. I think ID-ing birds would be more guesswork on the current resolution I'm seeing on my screen.

Regards,
Julie Dutoit
4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Thursday, 30 May 2019 4:11 PM

To: DSOUZA Marshall; ROBERTSON Katharine; DUTOIT Julie; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina

Subject: RE: Raine Island Acoustic Posts

Also these orthomosaics offer a very good comparison of resolution between drones

June – DJI Matrice 200

Oct – DJI Spark

Dec – DJI Mavic Pro

For birds it shows we really need to go with the Matrice 200. For topographic maps the Spark and Mavic are actually really good.

Will be another DJI Matrice 200 ortho for April 2019 shortly, almost complete

Cheers

Andy

From: DUNSTAN Andrew

Sent: Thursday, 30 May 2019 2:30 PM

To: DSOUZA Marshall; ROBERTSON Katharine; DUTOIT Julie; MCDOUGALL Andrew (Rockhampton); ALDERSON Tina

Subject: FW: Raine Island Acoustic Posts

Thanks Marshall for identifying these 20 x 20m bounding boxes around the central acoustic logger – available for five drone dates of surveys done during three separate trips back to June, Oct and Dec 2018.

<\\LANDS\Data\DNRME\Shared Transfer\Brisbane\RIRP>

That's brilliant and I think will be a good long term solution for acoustic counts and even other bounded areas of standard location. Just missing R23 and R24?

Cheers

Andy

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>

Sent: Thursday, 30 May 2019 10:58 AM

To: DUNSTAN Andrew

19-211

Subject: RE: Raine Island Acoustic Posts

Hi Andy,

They have been renamed.

Cheers, Marshall

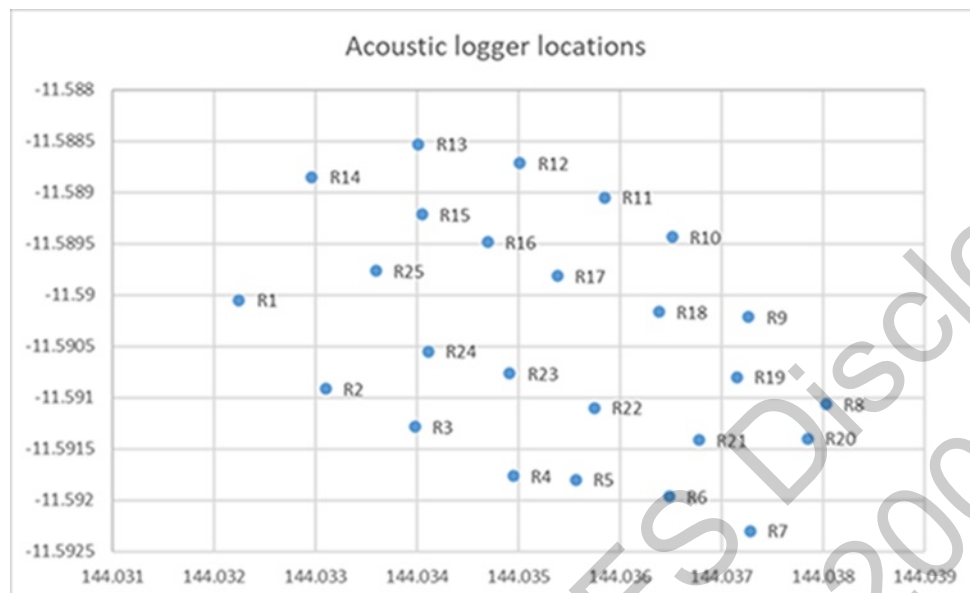
From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Thursday, 30 May 2019 10:03 AM

To: DSOUZA Marshall

Subject: RE: Raine Island Acoustic Posts

Thanks Marshall looks good if you could just relabel them as in this pic and spreadhseet thanks.



From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>

Sent: Wednesday, 29 May 2019 8:17 AM

To: DUNSTAN Andrew

Subject: Raine Island Acoustic Posts

Hi Andy,

Could you have a look at the link below and see if that is fine for the ortho extracts around bird acoustic poles.

I've used a 20x20m box around each pole location for available orthos going back to June 2018. I've also given them numbers but if you have a list of names for each pole I can rename them.

<\\LANDS\Data\DNRME\Shared Transfer\Brisbane\RIRP>

Cheers,



Marshall D'Souza

Spatial Information Officer

Land and Spatial Information | Geodesy and Positioning

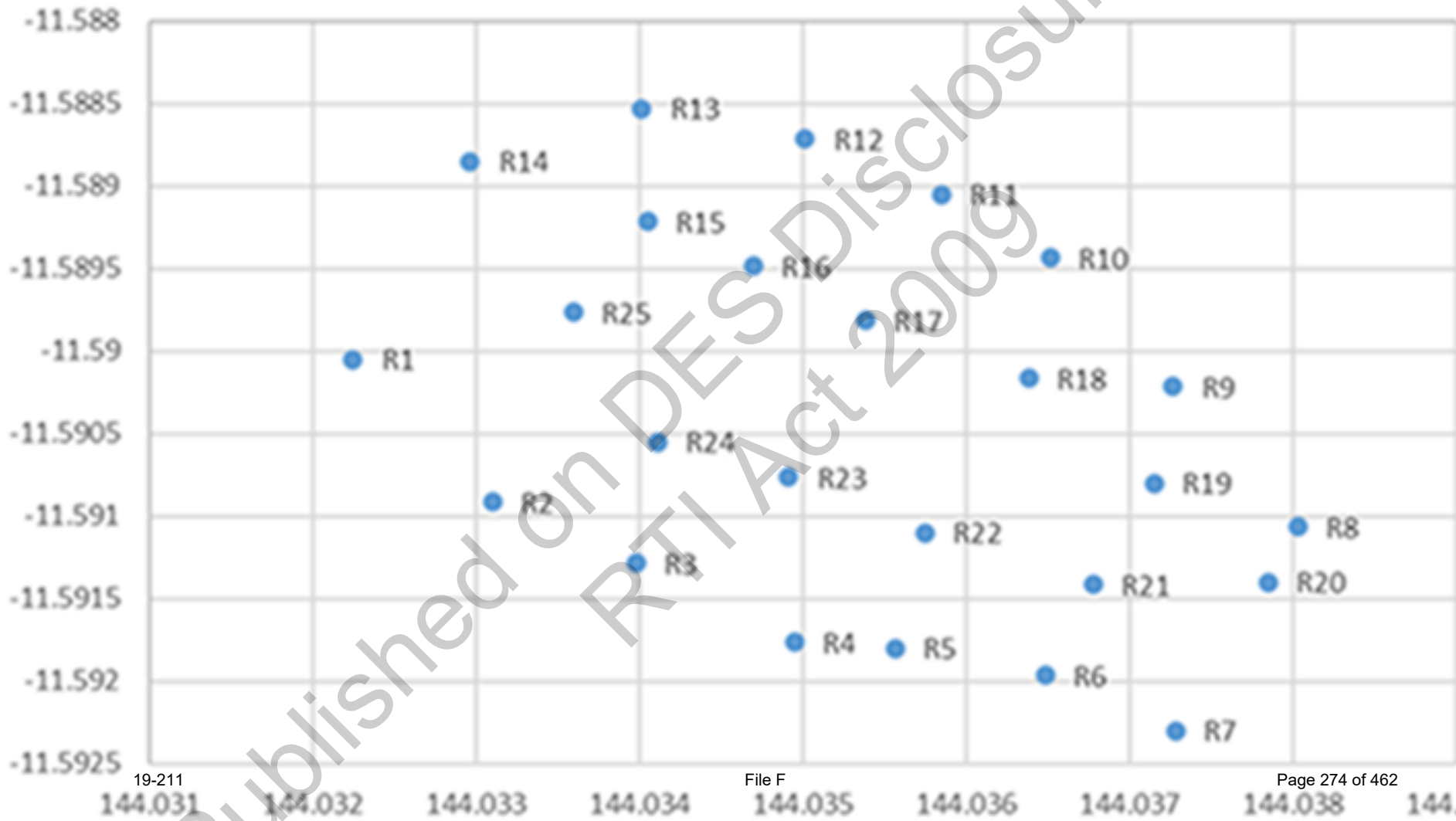
Department of Natural Resources, Mines and Energy

P: 3330 4346

E: marshall.dsouza@dnrme.qld.gov.au

A: 275 George St, Brisbane QLD 4000

Acoustic logger locations



Release

Date : 28/06/2019 9:22:09 AM

From : "HEAD Damien"

To : "DUNSTAN Andrew" , "HEMSON Graham" , "ALDERSON Tina"

Subject : FW: TechRepublic: How AI and drones are trying to save the Great Barrier Reef

How AI and drones are trying to save the Great Barrier Reef

Time is running out, with half of the reef's coral already dead.

Read in TechRepublic: https://apple.news/ADDszKrzNsa5_9SLTu3RTA

Shared from [Apple News](#)

Sent from my iPad

Published on DES Disclosure Log
RTI Act 2009

Date : 24/07/2018 8:38:12 AM

From : "JACOBS Nigel"

To : "DUNSTAN Andrew"

Subject : FW: WoDC 2018 - Exhibition stand artwork

Attachment : DPC6348 World of Drones handbook advert A4 HR final.pdf;DPC6347 World of Drones stand MOCKUP-reference.pdf;image002.png;image001.png;image003.jpg;

Hi Andy,

FYI, this is what our stand at the Drone congress will look like.

Cheers,

Nigel

From: Tabitha Butcher <tabitha.butcher@premiers.qld.gov.au>

Sent: Monday, 23 July 2018 5:04 PM

To: jayce.north@tiq.qld.gov.au; NORTH, Kaye; MOXHAM Lowana; MALONEY, Tim; Jane Nettleton; Angela.J.Bakker@tmr.qld.gov.au; HANLEY, Ross; Leah Hornibrook; Whittle.RobertJ@police.qld.gov.au; WALHAIN Brenda; KRAUS Kylie

Cc: Katie Erbacher

Subject: WoDC 2018 - Exhibition stand artwork

Good afternoon,

Please see attached the QG advertisement that will appear in the congress handbook. Departments participating in the exhibition stand are referenced in the ad.

I have attached the final design of the exhibition stand for your reference.

The operations manual will be coming through tomorrow.

If you have any questions please let me know.

Warm regards

Tabitha



Tabitha Butcher

Project Coordinator, Events Coordination

Strategic Engagement and Protocol

Department of the Premier and Cabinet

P 07 3003 9122 M (6) Personal infor

1 William Street, Level 29, Brisbane QLD 4000

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Learn more about Queensland's position as a hub for drone industry research, development and innovation.

Queensland is leading the way nationally, with the vision to be a world-leader in drone technology and application.

We are working to ensure our drone industry has strong investment and jobs growth, supported by our research and development capabilities and a highly skilled workforce. The sector sees drone technologies introduced to complement and enhance peoples' lives and support our communities.

The Queensland Drones Strategy is in place to keep Queensland at the forefront of this developing and dynamic industry, and is available to read here:
www.premiers.qld.gov.au/publications/categories/plans/queensland-drones-strategy.aspx

Come and discuss your upcoming opportunity with Queensland Government representatives.

Thursday 9 August

Morning session

- Trade and Investment Queensland
- Department of Education
- Department of Innovation and Tourism Industry Development and the Commonwealth Games
- Department of Employment, Small Business and Training

Afternoon session

- Department of State Development, Manufacturing, Infrastructure and Planning
- Department of Transport and Main Roads
- Department of Employment, Small Business and Training

Friday 10 August

Morning session

- Queensland Fire and Emergency Services
- Department of Education
- Queensland Police Service

Afternoon session

- Department of Environment and Science
- Queensland Fire and Emergency Services
- Department of Agriculture and Fisheries

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INVESTMENT SIDE

INDUSTRY SIDE



Date : 29/05/2019 4:09:46 PM
From : "HEAD Damien"
To : "THORPE Kirsty" , "DUNSTAN Andrew"
Subject : Fwd: Technology data management and processing DNRME
Kirsty

Can you organise a meeting on Friday for 30 minute with Andy. Teleconference.

Tks.

Sent from my iPhone

Begin forwarded message:

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Date: 28 May 2019 at 7:09:48 pm AEST
To: HEAD Damien <Damien.Head@des.qld.gov.au>
Subject: RE: Technology data management and processing DNRME

Yeah understand, was just a guide for what is possible and most viable in this space. Part of the big picture thinking leading into next week's meeting but also necessary for ongoing Raine thinking.

From: HEAD Damien <Damien.Head@des.qld.gov.au>
Sent: Tuesday, 28 May 2019 5:30 PM
To: DUNSTAN Andrew
Subject: RE: Technology data management and processing DNRME

Andy

I cant just sign up to this here now. Lot to digest and need an appreciation of what we are doing and how it all comes together. Let talk further. Appreciate you introducing it though.
Damien

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Tuesday, 28 May 2019 4:07 PM
To: ALDERSON Tina; HEAD Damien
Cc: TASKER John
Subject: Technology data management and processing DNRME

Hi John, Tina and Damien

Just had a very good meeting with DNRME guys, Marshall Dsouza, John Tasker and Craig Kenealy (Topographic Data and Image Mapping Unit) to discuss processing and management of drone and remote camera imagery. Please check my summary here John and adjust if I have misinterpreted anything discussed.

The plan is to have a long term system in place for

- Data infrastructure: metadata tagging, data / image storage and tiered access for drone and still camera images related to topographic, seabird and turtle work
- Processing: output of topographic maps and orthomosaic imagery in a timely manner (less than 1 month post data provision).

Collaboration

At the moment DNRME have been happy to do Raine work to help in their R&D in this area. We are certainly leading this field. They are happy to continue this effort for R&D elements but the proposal is for QPWS to fund the standardised processing and infrastructure costs. This would be in the form of a service level agreement between QPWS and DNRME
Estimated commitment of 0.1FTE at PO2 and 0.2FTE at PO3 levels plus approximately \$2000 (20% contribution) to hardware for processing

Infrastructure

Risk analysis completed and approvals are expected next week for DNRME Spatial Services to use external cloud based data storage and multi-organisational access through Amazon Web Services (AWS) which now has an Australian based division. It is envisaged that the existing and evolving Queensland Imagery Database (QID) will articulate with AWS with a tiered licensing and data access system (following scientific validation and publication requirements)

Metadata tagging and archive filing / database system (QID) will be implemented and managed by DNRME

Costs for storage of 50TB would be \$360/mth with AWS with ITP on costs of about \$40/mth

This cost allows for 90% of data to be in 'glacial' storage which is essentially an archive with slow access rates and infrequent access ie. All the original images. The remaining 10% of storage would be 'S3' storage for fast and frequent access for processed outputs such as topographic and orthomosaic images

There would be a need for an approximate 0.1FTE of a PO2 position within Spatial Services to perform these tasks

*Note: we win the award easily for the largest data processing requirement with an orthomosaic image of 6000 frames at 0.5cm resolution resulting in a 300GB image of Raine

Processing

At this stage the full data processing and management requirements for Raine each year is estimated to be:

4 topographic images (processing and storage)

4 trips x 2 orthomosaic images for seabird census (processing and storage)

4 trips with images of acoustic stations pulled from orthomosaic image (processing and storage)

3 trips x 3 surveys of night thermal drone images of nesting beach for turtle counts from an orthomosaic (processing and storage)

3 trips x 3 surveys of painted turtles (image storage only)

Remote still camera images (storage only)

Processing times are approximately 1 week per Raine flight which covers both topo and seabird orthomosaic. Thermal night flights and acoustic station images are only about 1 day.

For the above processing requirements this equates to about 2 ½ mths of time – commitment of 0.2FTE of a PO3

Machine time is also a limiting factor so a 0.2FTE of hardware is also required at around \$2000

Bigger FMP picture

We can extend these numbers out to other requirements as they are identified within the QPWS/GBRMPA Field Management Program and DNRME are happy to ensure resources are available to do this (with sufficient lead time). This would include other islands for topo, turtle census/track counts and seabird work as well as future uses which may include weed, bleaching and reef mapping using dual RGB/multispectral camera. Could also include compliance flights if and when these eventuate dependant on privacy issues.

An example of the requirements for other islands such as Moulter Cay and Sandbank #8 to do a topo and seabird mapping flight. A dGPS with base station would need to be set up, ground control points laid out and mapped and drone flight conducted – 3 hour time frame so quite feasible.

DNRME will also discuss this system of partnership with a couple of other groups who are less evolved at this stage and are the Fire Ant program and QPWS Waste program.

Date : 19/06/2018 1:10:08 PM

From : sch4p4(6) Personal information

To : "DUNSTAN Andrew"

Subject : Invoice #00012638; From Visual Imaging Pty. Ltd.

Attachment : Inv00012638.pdf;

****Visual Imaging would like to thank you for your business****

Please contact us immediately if you are unable to detach or download your Invoice. Thank you.

Published on DES Disclosure Log
RTI Act 2009

A.B.N. 57 583 723 827

A.C.N. 139 259 073

Tax Invoice

Bill To:

Department of Environment and Science
GPO Box 2454
Brisbane Qld 4001

Ship To:

Department of Environment and Science
GPO Box 2454
Brisbane Qld 4001

Invoice: 00012638
Date: 19/06/2018
Purchase Order: Andrew Dustan
Page: 1

Description

Amount Code

Supply 20(No) 1200 x 1200m printed PVC banners with hem and eyelets - 8 eyelets in each. Drone banners 31-50

\$2,300.00 GST

Customer ABN -



Visual Imaging Pty Ltd
BSB : 014 734
ACC: 452 047 942

Terms: **All invoices MUST be paid upon completion of job. Unless by prior arrangement with Management.**

Freight: \$0.00 GST
GST: \$230.00
Total Inc GST: \$2,530.00
Amount Applied: \$0.00
Balance Due: \$2,530.00

Date : 13/08/2018 4:01:17 PM

From : "STEWART David"

To : "ALDERSON Tina" , "HEMSON Graham" , "DUNSTAN Andrew" , "MCDOUGALL Andrew (Rockhampton)" , "ROBERTSON Katharine" , "ARMSTRONG Bridget" , "DUTOIT Julie" , "MCDONALD Jane" , "MURRAY Kristy" , "Stephanie Lemm (stephanie.lemm@gbmpa.gov.au)"

Cc : "HODGON John" , "MCDONALD Jane" , "mark.read@gbmpa.gov.au" , "SCHAPER Dan" , "ORGILL Dave"

Subject : Minutes from Seabird Teleconference 17 July 2018

Attachment : Tropical Seabird teleconference 2018 07 17.docx;image001.png;image005.png;image006.jpg;

Good afternoon all,

Minutes from the Tropical Seabird Teleconference (#24) from last month.

Regards

David



Dr David Stewart

Senior Conservation Officer

Threatened Species Project

Department of Environment and Science

P 07 3330 5496 M (6) Personal info

Level 31, 400 George St, Brisbane QLD 4000

GPO Box 2454, Brisbane QLD 4001



Seabird Teleconference

17th July 2018

Attendees

Andrew Dunstan, QPWS (AD),
Julie Dutoit, QPWS (JD),
Jane McDonald, TSP (JM),
Andrew McDougall, QPWS (AM),
Katharine Robertson, QPWS (KR),
David Stewart, TSP (DS),

Apologies

Tina Alderson, QPWS
Kristy Curry, QPWS
Graham Hemson, QPWS

Raine Island

Acoustic recorders

Replaced broken recorders and microphones during last trip

Acoustic data

Acoustic data should be down loaded as regularly as possible to prevent the loss of data.

This acoustic data stored on hard drives with other acoustic data, including recordings from the Capricornia Cays etc. and sent to Conservation Biometrics in America for analysis twice a years.

Actions

- Acoustic data to be down loaded twice / year
- **AM** source more batteries or more battery chargers to make battery changing process quicker
- **JD** download data SD cards and send to AM

Drone vs Observer counts

Are the counts of birds around the acoustic records using drones more accurate than the counts by observers on the ground?

Is it possible to count birds out to 10 metres?

Accurately, correctly and know if the birds are resting or breeding.

Photos using subtraction analysis with 3 photos

Red-tailed tropicbird project

132 plus red-tailed tropicbird nest locate

42 nests, 39 chicks, 23 young, 28 adolescents, 93 adults

Training

DS trained some QPWS staff and Traditional Owners to correctly pick-up RTTP, read and record the band number, then return the bird to the point of capture and place the tropicbirds on the egg or chick or to the nest.

Action

- DS to provide written advice to QPWS regarding red-tailed tropicbird holding and band reading training that was conducted on during the last Raine Island Trip, outlining:
 - a) What was shown and practiced during the training; and
 - b) By whom (Katharine, Andy and Jimmy, Eric and Pablo).

Sand re-profiling

Next area that may be reprofiled is adjacent to the boat mooring on Raine Island in June – Oct 2019.

The area of berm currently under consideration is between 100 – 150 metres either side of the Raine Island base. Because of the prevailing winds, this area of berm is considerably lower than the other area of berm and turtle productive in this area is low.

Red-tailed Tropicbirds

The current plan under consideration is to reprofile the sand up to the cliff. This plan would cover RTTB nest.

Action

- KR to send RTTB maps to everyone

Action

- The nest site fidelity of Red-tailed Tropicbirds for Raine Island needs to be investigated using the data collected and reviewing the published data for this species for Raine Island and other islands in the western Pacific Ocean.

Other species

Herald petrels – how close is it going to be to the Herald petrel nest down from the mooring (Herald petrel bands 01 and 02).

Although most disturbance would be at a time when seabird breeding is at a low, there is some species breeding or present on the island and in the area. How will be disturbance be mitigated for the noddies and the shearwaters that are still present the cliff during the winter months.

Action

AD can we get a map of this reprofiling when it becomes available?

Action

DS to progress new RTTB banding project

Herald petrel project

Maximum of 24 Herald petrels record in any one count.

19 Herald petrels caught.

17 of these Herald petrels were banded with Australian Bird and Bat rings;

18 of these Herald petrels were fitted with GLS (Global Location Sensor) tracking device;

Blood from the brachial vein of 7 birds was collected for genetic analysis.

An additional petrel, believed to be a phoenix petrel was also caught on Raine Island

This petrel as also fitted with a GLS tracking device.

A report for this petrel is being prepared for the Birds Australia Rarities Committee. This report and the determination from the BARC will be provided to QPWS, TSP, Wildnet and the Raine Island Scientific Advisory Committee.

The report to BARC will be finalised in a by the end of July 2018, however there is now expected date when a report will be received from the chairperson of the committee.

Moulter Cay

KR discussed the possibility of surveying Moulter Cay during 2019 winter trip for Herald petrels and / or AM flagged the possibility of attaching an acoustic recorder to a sign to record to potential record these petrels visiting the island throughout the winter months.

A number of red-tailed tropicbirds were also recorded on Moulter Cay during the recent winter trip, including RTTB that were seen to be flying up from the small cliff. Although no evidence of breeding could be found, this is another species that may be expanding to this Cay

Drones

Matching drones with observer counts

The drone had interchangeable 17 mm and 45 mm lens, enabling Raine Island to be photographed with overlapping photos in 1 hour and 4 hour flights respectively.

Images from these flights have been archived by DNRME which are accessible for use by use.

Michaelmas Cay

Continuous monthly surveys.

Vegetation has started to grow back on the island, with the small patches of vegetation now growing and joining and other patches forming larger patches.

There is no formal monitoring program for this re-establishment of vegetation on Michaelmas Cay. At the moment only needs to be documented by standard photographic records.

Second cay forming nearby known as 'Little Michaelmas Cay'.

Rubbish clean-up

QPWS was approached by operators to clean the beach around Michaelmas Cay.

There is a small window in the year when there is lull in number of seabirds breeding when a rubbish clean up can occur

The beach is reasonably clean of macro plastics compared to previous years, however closer inspection of the sand reveal considerable amounts of micro plastics.

Action

DS to send Seabird SOP to JD and AM

Swain Reef

AM surveys Swains this month

Fairy tern – will need more intense survey effort

May need use acoustic records to locate fairy tern breeding activity

Capricornia Cays

Continued monthly bird surveys by TO rangers and QPWS staff

Mouse activity will be monitored over the next few months prior to baiting by the use of ink pads.

The acoustic recording indicate that the wedge-tailed shearwater have stabilised following the rapid falls observed a few years and are either steady or showing some improvement.

We are still awaiting analysis from recordings from last year acoustic recordings.

Bird review

Reporting

QPWS currently meeting targets.

However there is need for more training.

Action

- JD to propose more seabird id and survey training and online training.

Date : 23/07/2019 10:09:50 AM

From : "STEWART David"

To : "ALDERSON Tina" , "MCDUGALL Andrew (Rockhampton)" , "DUTOIT Julie" , "MURRAY Kristy" , "ROBERTSON Katharine" , "Stephanie Lemm (stephanie.lemm@gbrmpa.gov.au)" , "DUNSTAN Andrew" , "ARMSTRONG Bridget"
Cc : "mark.read@gbrmpa.gov.au" , "ORGILL Dave" , "SCHAPER Dan" , "HODGON John" , "MEHRTENS Jodie" , "HEMSON Graham"

Subject : Minutes from Tropical Seabird Teleconference; May 14

Attachment : Seabird teleconference_2019_05_23.docx;RIRPSAG_Paper_11_Attachment 2 Raine risk-assessment-April 2019 draft.xls;image001.png;image002.png;image004.jpg;

Good morning all.

Please find attached minutes from the last Tropical Seabird Teleconference held back on the 14th May 2019.

Also attached is the risk assessment for the next section of sand works on Raine Island, scheduled for between 29 August – 10 September this year.

Sorry in the delay in getting these minutes out

Regards

David



Dr David Stewart

Senior Conservation Officer

[Threatened Species Operations](#)

[Wildlife and Threatened Species Operations | QPWS & Partnerships](#)

Department of Environment and Science

P 07 3330 5496 M [6\) Personal info](#)

Level 5, 400 George St, Brisbane QLD 4000

GPO Box 2454, Brisbane QLD 4001



Seabird Teleconference

14th May 2019

Participants

Tina Alderson, (TA) QPWS;
Julie Dutoit (Julie D), QPWS;
Andrew Dunstan (Andrew D.) QPWS;
Stephanie Lemm, (Steph L) GBRMPA;
Andrew McDougall, (Andrew McD) QPWS;
Kristy Murry (Kristy M) QPWS;
Katherine Robertson (Katherine R) QPWS; and
David Stewart (David S), QPWS.

Apologies

Bridget Armstrong, QPWS

BA11

Julie D.

Align QPWS assessment with Value Based Management Framework using their terminology, as one of their values is seabirds habitats.

This will allow the effectiveness of the statutory closure of important seabird island in the GBR to be assessed.

- At present, very few important seabird islands are effectively closed during the breeding season.
 - Breeding sites need protection under both the Nature Conservation and Marine Parks Legislation.
- For most breeding sites, it is unlikely any action could be taken if a disturbance of seabird breeding colony was to occur.

Action

Julie D – Send Kristy. M. progress report of BA11.

Raine Island

QPWS media would like to do a media release about the Phoenix petrel on Raine Island.

Winter Raine Island Trip

Dates: 17th– 27th June

Other islands that will be visited during the Winter Raine Island trip will be:

Davies Cay,
Tideman Cay,
Sand bank No1 (Lee has asked to assess if this site should be included in the seabird count sites), and
Moulter Cay.

Noddy transects

Action

Andrew McD to delete noddy transects from Raine Island GPS's and reload transects from his GPS

Action

Andrew McD to walk new transects on Moulter Cay

Seabird Survey Training

Katherine R to do bird surveys with Andrew McD on upcoming Raine Island trip to assess her competency and hopefully sign her off as 'Competent' to lead and conduct bird surveys.

Acoustics

Julie has developed a table to summarise when we have done on ground counts (both whole island and around acoustics), taken drone footage (both whole island and around acoustics), counted from drone footage and analysed acoustic recordings. ,

It is hoped that eventually automated drone counts might replace ground counts. For this to happen, we need to be confident that the on ground counts and drone counts are similar.

Some questions have been asked, eg.,

- Are the acoustic recorders in the right locations on the island, or do some of the records need to be relocated.
- Can breeding birds be seen in the dense vegetation close to the records.

Red-tailed Tropicbird project

RTTB have been recorded in Box 4 and Box 8

Recovery of banded RTTB

Band number: 091-35283

Banded: 25/06/1996

Banded 22 years 11 months and 28 days before being retrapped on Raine Island 22/06/2019

Banded by J. Cornelius on Raine Island

Project plan

The RTTB project plan end in June 2019

New project plan

- Leave boxes on the island for another 3 years
- Add data loggers to investigate why not other boxes are not being used and temperature difference between insulated and unsulated boxes
- Repair boxes if needed

In the present plan it suggests expanding to project to other island. At present, there is no need to do this, however initial results suggest it will work and if need it can be employed as a management tool if ever needed on these other islands.

More than 400 locations have been identified as potential breeding sites for RTTB on Raine Island. Nest sites may not be a limiting factor on Raine Island. Possibly boxes are selected because they are there, not because they are needed!

Banding RTTB

- The new project plan should include, catching RTTB on one night and looking for banded birds by staff trained with handling birds / RTTB.
To reduce stress on the RTTB and minimise egg / chick abandonment by the tropicbird, this should only be done at night.

Some thoughts after the teleconference

Some questions that I have been thinking about!

At present, we do not know how many RTTB there are on Raine Island?

Do each pair have a preferred nesting site?

Does each pair nest annually? If not, will another pair use the same nest site?

June this year – only 1 in 10 RTTB were banded.

Raine Island Petrels

Katherine R provided location information of some petrels that she found during the April 2019 Raine Island trip.

Sand movement

The sand movement on Raine Island will be going ahead

A risk assessment has been prepared for next section of island to be modified.

Katherine R send out a map showing the areas to modified. The exact areas will be determine during the June trip.

Again, the top sand will be stock piled while the dunes are being re-profiled. The top layer of sand which containing the grass seeds will be laid over the top of the new dunes.

Raine Island SAG

A member of the Raine Island SAG has asked if the activities by QPWS has the disturbed frigatebird breeding in the south-east corner of the island. Other SAG members questioned if frigatebirds ever bred in that area.

Seabird monitoring by QPWS indicated that the frigatebird colony moves around the island, and the counts for the last five years have been the highest for that species.

Andrew McD will write a paragraph for the SAG.

Capricornia Cays

During the January – February seabird survey

- High roseate tern counts
- Completed 15 of the 30 addition 30 ground counts necessary to correlate the acoustic recordings with bird density near the recording station by the Bioacoustics Laboratory.

Date : 13/08/2018 2:23:06 PM

From : "Tony Tucker"

To : "Paul Whittcock" , "DUNSTAN Andrew" , "Kerri Woodcock"

Cc : "Ryan Douglas" , "Scott Whiting" , "Elizabeth Bevan (bevan.em@gmail.com)"

Subject : more turtle drone footage for workshop

Hi Paul/Andy

There's some turtle/drone footage that aired on ABC last week.

It is associated with Kerri Woodcock's talk which is now positioned prior to the Sunday Technology Workshop.

<https://dronebelow.com/2018/08/10/turtle-tracking-by-drone-cape-york-australia/>

<http://www.abc.net.au/news/2018-08-08/drones-trialled-for-turtle-count-cape-york-peninsula/10089700>

Kerri mentioned UAVs might not be emphasized by her talk, so there's some potential for that clip to be borrowed for the Monitoring technology workshop, either the drones or the camera trapping of pigs.

Her email is attached for you all to discuss that and whether it needs some permission from ABC or agencies approval

I've also cc'd Elizabeth Bevan that there may be a call for a clip, and Ryan to organize that if needed. DBCA has many camera trap images at Pilbarra or Kimberley turtle rookeries, if needed

Standing by

Tony

Tony Tucker, PhD

Senior Research Scientist-Marine Science

Department of Biodiversity, Conservation and Attractions

17 Dick Perry Ave, Kensington WESTERN AUSTRALIA 6151

P: 08 9219 9753 M: (6) Personal info F: 08 9334 0327

tony.tucker@dbca.wa.gov.au | www.dbca.wa.gov.au

scholar.google.com/citations?user=1qdXEVsAAAAJ&hl=en

www.researchgate.net/profile/Anton_Tucker2/

Date : 28/05/2019 2:58:50 PM
From : "DUNSTAN Andrew"
To : "DUNSTAN Andrew"
Subject : Network gear at Raine

NAS
Switch
Vivotek x 2
Sony x 1
Vaisala x 2
Wifi x 4
Sat modem x 2
Inverter x 1
Weather station Campbell logger and refit pelican case/replace
Temp loggers and cables
Troll loggers and cables
Pic of solar power panel at all remote stations and at base
Charging stations required for drone and computers
Covers for cameras and PTZ
Bird spike protection
GPS base station pic and antenna pic
Satellite pics
Wifi booster
Wifi aerial and unit
Trail camera mounts
Solar mounts and power for trail cameras or check battery life
Tower stays spares and easy adjustment/release
Tower supports when lowered – 2 x star pickets
Bigger holes in remote stations for wiring with flanges
Can we setup at QUT and then oval for test
How do we test sat comms
New mounting brackets for sony cameras
Cat 5 cable, pliers, connectors and tester
12V cable
12V buzzbar
LED lights
Tool checklist and requirements
Toolbox – plastic
Power tools and charger near door
2 computer stations

Get wiring distance from towers
Get pelican cases x 4

Date : 13/06/2019 11:04:56 AM

From : "HURREN Kerry-Anne"

To : "HESS Lee" , "BRADSHAW Steven" , "DUNSTAN Andrew" , "TEALEBROWNE Callum" , "COOK Tayce"

Cc : "ARMSTRONG Warrick" , "RALPH Tom" , "WINN Nathan" , "CENTURINO Patrick"

Subject : Northern GBR Drone Working Group Meeting Minutes - June 2019

Attachment : 20190607_Northern GBR Drone Working Group_Establishment and Operations_Meeting

Minutes.docx;image001.png;image002.png;

Hi fellow drone users (and Lee),

Please find minutes from last week's meeting attached with a list of actions.

I'd just like to say thank you to Steve for doing the investigating in relation to all of this. I have just been the facilitator for the group but Steve has been the one doing the majority of the hard work and I just wanted to acknowledge that.

Cheers,

K-A



Kerry-Anne Hurren

A/Ranger in Charge (Natural Resource Management)

Great Barrier Reef & Marine Parks I QPWS and Partnerships

Department of Environment & Science

M 6) Personal info | E Kerry-Anne.Hurren@des.qld.gov.au

100 – 106 Tingira Street PORTSMITH QLD 4870

Po Box 685 BUNGALOW QLD 4870

I acknowledge the Traditional Owners on whose land and sea country I work and live. I pay my respects to all elders past, present and future.

Meeting minutes

Date: 7 June 2019

Time: 1230 - 1400

Location: Cairns (Tingira Street)

Meeting title: Northern GBR Drone Working Group

Purpose: Establishment and operations

Contact	Kerry-Anne Hurren
Attendees	Lee Hess, Steve Bradshaw, Andy Dunstan, Callum Teale-Browne, Tayce Cook
Absent	

Meeting Items

- ReOC or Landowner Rules – Which is best for our operations?
 - Three options to operate under
 - DES ReOC
 - Landowner Rules
 - Sub 2kg
 - DES ReOC
 - Constrictive as have to align the ReOC to both aircraft and pilot.
 - Requires approvals from the Chief Pilot and sign off on practical tests.
 - To fly at night or within 15m of people, need to operate under the ReOC
 - It is a Departmental ReOC only, do not believe there is any option for QPWS ReOC
 - Landowner Rules
 - Allow us to do more and anyone can then fly our drones up to 25kg (150 kg if person holds RePL) ie. don't have to have everyone licensed. As such, by choosing to operate under the Landowner Rules, it could essentially future proof our operations.
 - Landowner definition questioned in relation to CYPAL NP's. Lee advised ok for QPWS.
 - Operate under the Landowner Rules but align the way we do things with the DES ReOC.
 - Must choose 'one of the other' to operate under for both drone and pilot ie. a drone must be assigned to either the ReOC, or Landowner Rules, not switch between. The same goes for pilots. Once you choose to operate under the ReOC, you cannot then go and operate under the Landowner Rules unless you formally change with ReOC.
 - All agreed to operate under Landowner Rules for time being except for Callum and compliance operations. Compliance operations should have a standalone drone.
 - Can Callum be signed off to operate under GBRMPA ReOC and/or DES ReOC and purchase a third drone to be assigned to the ReOC?Not sure if/how this would work with a drone and pilot on 2 ReOC? Would be double handling everything (flight plans, logs etc)
 - Restricted airspace around Barnard Island group (military) and Michaelmas Cay so cannot operate drone in those areas under Landowner Rules
- Logbooks
 - Discussed option of using paper logbooks or using an online program (AVCRM). The online program records the same information as is required when using the ReOC and means that all the information is captured in one place without risk of losing paperwork.
 - The online program costs ~\$400 per user annually.
 - Lee keen on user group login, however Steve not sure if possible.
 - Agreed to trial online app with user logins for Callum, Andy and one for Steve, Kerry-Anne and Tayce to share for now if user group login not possible. Note: Callum will likely get a login when he registers under the ReOC anyway.
 - Andy is using Groundsystem Pro mapping app but it doesn't keep digital records of flights.
- Drone Operators – Who do we want to operate the drones in to the future?

- Not everyone to keep data capture and operations consistent (Drones are not toys for everyone to 'have a play').
- RePL holders/members of Northern GBR Drone User Working Group to begin training and mentoring (when appropriate) the following staff to operate Drones under Landowner Rules as approved by Lee
 - Paul Bikaunieks
 - Warrick Armstrong
 - Graham Barnes
 - Chris Billett
 - Paul Sexton
 - Kurt Zietlow
- Plan to develop short induction/training day/s for above nominated staff similar to the RePL course. Nominated staff to undergo this induction/training day/s before operating drones.
- Future proofing operations – Where do we see ourselves going with drone use?
 - Lee requested a generic list of tasks we see drones being used for and what drone would be best suited for what tasks. This negates the risk of buying multiple drones for single tasks. Kerry-Anne thinks the Innovations team have already started one.
 - User group to continue discussions on where we are at with drone use and where we are going.
 - Where is the Region heading drone wise? Currently no marine park rep on the QPWS Drone working group.
- Other
 - The drones are currently registered to individuals, ie. the Matrice is registered to Andy and the Mavic Pro is registered to Benny. Therefore any Firmware reminders/authentications etc go to individuals. This makes it hard for anyone else to keep track and/or undertake updates. Can we align them to a tablet?
 - Andy is working with DNRM regarding 'crunching' drone data and getting together a formal version of the agreement so that there is a centralised location for data storage and processing.

Actions Arising

Issue	Action	Responsibility
ReOC or Landowner	Register Drones and pilots under Landowner Rules?	Steve
Stand alone drone for compliance to operate under ReOC	<ul style="list-style-type: none"> - Sign up to operate under DES ReOC (and GBRMPA??) - Purchase a drone for compliance operations to be registered under the ReOC 	Callum
Logbooks	<ul style="list-style-type: none"> - Look in to option of User Group login for AVCRM program further - Clarify with 'Denzo' what logbook he uses and what 'logins' he can give us and if they are useful to us - Otherwise obtain login's for Andy, and one for Steve, Kerry-Anne and Tayce 	Steve Andy & Steve
Training/Mentoring other users	<ul style="list-style-type: none"> - Develop initial training package for nominated users 	K-A & Steve
Drone's are registered under individuals	<ul style="list-style-type: none"> - Investigate if MAVIC Pro tablet has SIM capability - Can we align the Drone registrations to a tablet with a SIM? 	K-A Steve
Getting the right drones for the job	<ul style="list-style-type: none"> - Check with Scott Brooke if spreadsheet of Drone specs exists 	K-A
Where is the Region heading with drone use?	<ul style="list-style-type: none"> - Discuss bigger picture and the need for a marine park representative on the QPWS working group with Graham Hemson and Damian 	Andy
Matrice hours unknown. Is service/new batteries due?	<ul style="list-style-type: none"> - Work out how many hours are on the Matrice 	Andy



Maintenance schedules	- Responsible officer for maintenance schedules on Matrice and Mavic Pro	Tayce

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Date : 3/12/2018 11:20:49 AM
From : "DSOUZA Marshall"
To : "DUNSTAN Andrew"
Cc : "PICKFORD Jeffrey" , "ROBERTSON Katharine"
Subject : Raine 2018 October Drone Products
Attachment : image001.png;
Hi Andy,

See link below for accessing the processed drone products from the October trip.

This includes a DSM(Digital Surface Model) and an orthoimage for each day flown (29th and 30th of October).

\\LANDS\Data\DES\Shared Transfer\Brisbane\Raine\201810_Drone_Products

Cheers,



Marshall D'Souza
Graduate Spatial Information Officer
Land and Spatial Information | Survey Integration
Department of Natural Resources, Mines and Energy

P: 3330 4346
E: marshall.dsouza@dnrme.qld.gov.au
A: 275 George St, Brisbane CBD, QLD, 4000

Date : 6/11/2019 10:33:39 AM

From : "ALDERSON Tina"

To : "DUNSTAN Andrew" , "ROBERTSON Katharine"

Subject : Raine filming -biopixel

Attachment : image001.png;

See below from Louise

'As discussed, we need to visually document some key aspects of this final season of the Raine Island Recovery Project, particularly as I understand this is shaping up to be a bigger year than last year in terms of turtle numbers. As such, we'd like to work with you to allocate a place on two field trips this season to Biopixel staff member Tai Inoue, ie the December long trip (not the delegates trip) and either the February or April trip next year. The purpose is to document the final stages of the current restoration cycle as well as using new technology including 360 VR and new innovative drone techniques to capture turtle numbers and research on the December nesting trip (including the auto image analysis with Matt Dunbabin and continuing to capture the Traditional Owners' journeys) and similarly to document the hatchling success in either February or April. Let me know if you need any more details.'

I did not want to commit to anything not really knowing purpose of peoples on trips- so said I would hand it to you two to consider and see if possible. So handballing it on for you two - please consider and get back to Louise at GBRF

Ta

Tina



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

Date : 8/08/2018 1:29:41 PM

From : "DSOUZA Marshall"

To : "TASKER John" , "DUNSTAN Andrew" , sch4p4(6) Personal information

Subject : Raine Island Automatic Counting of Birds

Just sending a meeting request to book the room.

Personal and Andy, my mobile is (6) Personal information in case I'm not near my desk phone to let you in.

Cheers, Marshall

From: DUNSTAN Andrew

Sent: Wednesday, 8 August 2018 11:45 AM

To: DSOUZA Marshall; ch4p4(6) Personal information

Cc: TASKER John

Subject: RE: Raine Island Automatic Counting of Birds

See you guys at 3.15 then at 275 George. Sounds good and all coming together

Cheers

Andy

From: DSOUZA Marshall

Sent: Wednesday, 8 August 2018 10:18 AM

To: ch4p4(6) Personal information

Cc: DUNSTAN Andrew; TASKER John

Subject: RE: Raine Island Automatic Counting of Birds

Hi Personal

If coming here is not a problem, that would be great. We are located at 275 George st, on the corner of George and Adelaide St. When you're in the foyer you can give me a call and I can come down to let you up, my phone number is in my email signature.

Thanks, Marshall



Marshall D'Souza

Graduate Spatial Information Officer

Land and Spatial Information | Survey Integration

Department of Natural Resources, Mines and Energy

P: 3330 4346

E: marshall.dsouza@dnrme.qld.gov.au

A: 275 George St, Brisbane CBD, QLD, 4000

From: sch4p4(6) Personal information @qut.edu.au>

Sent: Wednesday, 8 August 2018 9:35 AM

To: DSOUZA Marshall

Cc: DUNSTAN Andrew; TASKER John

Subject: RE: Raine Island Automatic Counting of Birds

Hi Marshall,

Did you want me to come up to you folks or you down to QUT? I have a brief thing at 2:30pm which should take 15 minutes. At worst case I wouldn't get there until about 3:15 if that is OK?

Personal i

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>

Sent: Wednesday, 8 August 2018 9:32 AM

To: sch4p4(6) Personal information @qut.edu.au>

Cc: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>; TASKER John <John.Tasker@dnrme.qld.gov.au>

Subject: RE: Raine Island Automatic Counting of Birds

Hi Personal i

This afternoon would suit, is 3pm fine?

John and Andy are available as well.

Kind Regards,

Marshall

From: DSOUZA Marshall
Sent: Wednesday, 8 August 2018 8:13 AM
To: sch4p4(6) Personal information
Subject: RE: Raine Island Automatic Counting of Birds

Hi Personal i

I'll also see if Andy Dunstan and John Tasker is able to join as they are also involved with developing the training dataset. This afternoon may work based on their availabilities, but if possible a meeting later this week may suit better, I will let you know ASAP.

The following link is for the new version of the web app.

<https://qportal.information.qld.gov.au/arcgis/apps/webappviewer/index.html?id=8f592f62400c4ffb9b50702b97a09794>

Thanks, Marshall

From: sch4p4(6) Personal information <@qut.edu.au>
Sent: Tuesday, 7 August 2018 8:30 PM
To: DSOUZA Marshall
Cc: PICKFORD Jeffrey
Subject: RE: Raine Island Automatic Counting of Birds

Hi Marshall,

Thanks for the email. I think a meeting would be more productive. I tried the link but said the resource was not found. Tomorrow afternoon would work.

Personal

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>
Sent: Tuesday, 7 August 2018 8:59 AM
To: sch4p4(6) Personal information <@qut.edu.au>
Cc: PICKFORD Jeffrey <Jeffrey.Pickford@dnrme.qld.gov.au>
Subject: Raine Island Automatic Counting of Birds

Hi (6) Personal info

It was great meeting you at the Raine Island Project Meeting with Boeing on the 23rd of July. It has been some time since then and I thought I should update you on the progress on what's been done regarding the collection of training data for the aim of automatic recognition of seabird species from drone imagery. Currently we are developing a web application where users can define locations of birds from the drone orthoimages, a test app is linked below. This is also a way for us to test a platform we are developing for citizen science and alike:

<https://qportal.information.qld.gov.au/arcgis/apps/webappviewer/index.html?id=f4748bb7db8e4bd3858a51945f11bfc5>

Soon we will be able to start defining the locations of birds with a few bird enthusiasts who are able to distinguish bird species from the imagery.

I had a few enquiries regarding the training data as we begin to consider what may be required with the training data. From the meeting, you mentioned that either geographic coordinates or XY location on the photo was suitable to train the ML program. From looking at the example orthophoto in the link above, what methodology would you use to start collecting the training data for the purposes of auto recognition in future orthoimages? i.e how many points for each species is required? I would imagine that along with quantity of points, collecting a range of situations a species may be in would be beneficial. Possibly a small trial of using one or two species of birds may be useful.

We are just looking for a starting point for the collection of training data for the purposes of machine learning once this app has been developed and your insights on this would be much appreciated.

If a meeting would be more suitable, I will be free tomorrow afternoon as well as Thursday or Friday.

Kind Regards,



Marshall D'Souza
Graduate Spatial Information Officer
Land and Spatial Information | Survey Integration
Department of Natural Resources, Mines and Energy

P: 3330 4346
E: marshall.dsouza@dnrme.qld.gov.au
A: 275 George St, Brisbane CBD, QLD, 4000

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Date : 15/10/2018 3:21:11 PM

From : "TASKER John"

To : "DUNSTAN Andrew"

Cc : "STEWART Andrew.J" , "FORBUTT Luke" , "DSOUZA Marshall" , "PICKFORD Jeffrey"

Subject : Raine Island Collection Advice

Attachment : Jeff.PNG;MoretonRock_Cameras.PNG;image001.jpg;

Hi Andy,

The key findings from our analysis of the data from Moreton Island are the following:

- **Exposure:** The technique of manually setting the camera exposure once the drone has reached altitude has worked well to provide a balanced exposure across the collected data. I would recommend that a point with both sand & grass is chosen as the exposure calibration point to prevent under/over exposing the images of variable coverage types. During flights with significant variations in illumination (clouds -> clear), processing and analysis were more difficult, with noisy data or reconstruction failures likely. While a uniform exposure is best, auto exposure settings are acceptable if a situation with variable illumination cannot be avoided.
- **Linking Drone & Terrestrial Imagery:** Merging drone and terrestrial imagery has proven challenging but not impossible. We saw success with imagery of the large rock merging with minimal issues encountered. By comparison, significant problems were encountered when attempting to merge imagery of the DNRME Ute from DSLR cameras and nadir drone imagery. Eventually, this work was abandoned due to several unsuccessful attempts. Findings from these two examples reinforce the recommendations from the software suppliers with regards to overlaps and scaling. The success with the rock was achieved through similar imagery scales and significant overlaps between the drone and terrestrial imagery. Oblique photography assisted greatly in the software having similar reference points between the two sets of imagery. By comparison, the ute example contains significant differences in scaling and very limited overlaps between the drone and terrestrial data. Additional ground control points and user added tie-points might assist with merging these two scales of imagery. However, significant further testing is required.
- **Overlaps:** Increased forward and side overlaps were found to improve the accuracy of vertical faces (buildings, vegetation, topography) within the 3D model. This effect is most significant for the 45mm lens data due to reduced off-nadir distortions within the imagery. While greater overlaps are more time consuming, the benefits of this collection strategy for image processing and analysis are significant. A front:side ratio of 80:60 should be seen as the minimum requirement for future collections.
- **Survey Control:** Testing with the narrow corridor of survey control revealed the requirement for GCPs across the extent of the data collection. Noise in the data and un-expected distortions were observed as the distance from control points increased. The current methodology for ground control around the beaches of Raine Island remains the best approach to achieve the required vertical accuracy for the project. The inclusion of points in the interior of the island also remains as a recommendation for improved accuracy of mapping and analysis of the island's bird population.

There remain several opportunities for further testing to help refine collection and processing procedures. Below is a list of potential parameters to test:

- Partially oblique photography instead of nadir imagery (increased overlaps necessary, conduct flights in both directions along a run)
- Grid collection pattern (N-S + E-W) [Note: This approach would likely require fewer overlapping frames (70:60)]
- 18mm + 45mm combined collection (single day) to allow easier processing and analysis of imagery datasets

Kind regards,



John Tasker
Graduate Spatial Information Officer
State Imagery | Land & Spatial Information
Department of Natural Resources, Mines and Energy

P: (07) 3330 4311 | E: john.tasker@dnrme.qld.gov.au
275 George Street, Brisbane City QLD 4000



Date : 12/06/2019 12:59:58 PM

From : "DUNSTAN Andrew"

To : [p4(6) Personal information]@jcu.edu.au", "MEAGER Justin"

Subject : Raine nesting turtle population census paper

Attachment : PONE-AD painted turtles v7 SAG review.docx;

Hi [Personal information]

Have completed a draft of this paper and just included a short pers. comm. from you about the relevance of satellite tracking results to this study. Both Justin Meager and myself think at this stage this should be sufficient unless you disagree with the statement or think there is more of relevance to add (given the smallish sample size).

The relevant section is at pp 393-398 in the document with text as below.

Although no other studies have used drones in conjunction with mark-resight to estimate turtle abundance, other studies have use the direct count method, whereby counts of turtles are adjusted for the availability bias (Sykora-Bodie et al 2017). These adjustments were not deemed necessary in the Raine Island study due to the clear waters allowing detection throughout the 10 m depth range the turtles were shown to occur for the majority of time (M. Hamman, unpublished data from time depth recorders deployed on 21 nesters).

I look forward to you feedback on this and then will forward to paper to the SAG for review prior to submission.

Cheers

Andy

Use of drones for mark-resight nesting population estimation of adult female green sea turtles at Raine Island

*Andrew Dunstan¹, Katherine Robertson¹, Richard Fitzpatrick², Jeff Pickford³ and Justin Meager¹

¹Queensland Department of Environment and Science

PO Box 2454

Brisbane

Qld 4000

Australia

²Biopixel Oceans Foundation

James Cook University

14-88 McGregor Road

Smithfield 4878

Qld 4878

Australia

³Queensland Department of Natural Resources Mines and Energy

275 George St

Brisbane

Qld 4000

Australia

*Corresponding author

E-mail: andrew.dunstan@des.qld.gov.au (AJD)

Abstract

Nester abundance is a key measure of the performance of the world's largest green turtle rookery at Raine Island, Australia. Abundance surveys have been undertaken in waters adjacent to Raine Island reef using mark-resight counts by Surface Observer (SO), Underwater Video (UWV) and Drone methods (since 1984, 2013 and 2016 respectively). Drones and underwater video may provide more cost-effective and less biased alternatives, but estimates must be comparable with the historical estimates. Here we compare the three methods.

The relative probability of resighting a marked turtle was significantly higher by SO than the other methods, which led to lower mark-resight population estimates than by Drone or UWV. Most (96%) variation in resighting probabilities was associated with survey period, with comparatively little variation between consecutive days of sampling or time of day. This resulted in preliminary correction factors of 1.53 and 1.73 from SO-UWV and SO-Drone, respectively. However, the SO and UWV estimates were the most similar when turtle densities were the lowest, suggesting that correction factors need to take into account turtle density and that more data are required.

We hypothesise that the Drone and UWV methods improved detection rates of marked turtles because they allowed subsequent review and frame-by-frame analysis, thus reducing observer search error. Drones were the most efficient in terms of survey time, personnel commitment and weather tolerance compared to the SO and UWV methods.

This study indicates that using drones for in-water mark-resight turtle population estimation is an efficient and accurate method that can provide an accurate adjustment for historical abundance estimates. Underwater video may continue to be useful as a backup alternative to drone surveys.

Introduction

Green turtles, *Chelonia mydas*, are listed as vulnerable in the State of Queensland (Nature Conservation Act 1992) and in Australia (Environment Protection and Biodiversity Conservation Act 1999). The majority of the northern Great Barrier Reef (nGBR) population of green turtles nest at Raine Island (Figure 1), the world's largest remaining green turtle rookery (Seminoff et al 2015). Concerns about low reproductive success of green turtles at Raine Island have been reported since 1996 (Limpus et al 2003; Dunstan et al 2018), which is thought to be because of nesting beach inundation as well as nest environment factors such as respiratory gas, microbial or temperature extremes (Dunstan et al 2018). The population is also exposed to other cumulative impacts including climate change (Fuentes et al 2011), feminisation (Jensen et al 2018), hunting (Grayson et al 2010), plastic pollution (Schuyler et al 2014), vessel strikes (Hazel et al 2006), commercial fishing (Wilcox et al 2015) and coastal development (Bell et al 2019). An accurate index of nesting population numbers is critical for understanding the reproductive success and long-term changes to population numbers.

The remoteness of Raine Island and the sheer number of nesters on a given night have precluded total nesting censuses or a comprehensive mark recapture program. Instead, a mark-resight approach has been used to estimate the numbers of nesters in the surrounding internesting habitat since 1984 (Limpus et al 2003). Females are painted (marked) during

nightly tally counts, and counts of marked and unmarked turtles in the waters that surround Raine Island are used to estimate abundance during the sampling period using the Lincoln-Petersen estimator (LP). Mark-resight is therefore combined with in-water sampling, and thus estimations of nester abundance are dependent on the limitations and assumptions of both approaches.

The major challenge for in-water surveys is to have high detectability for both marked and unmarked turtles, given that marine turtles spend only a small proportion of their time at the surface, especially when surface conditions are poor, in turbid water or when turtles are amongst habitat structure (Fuentes et al 2015). The LP estimator is based on the assumption that the population is 'closed' during the sampling period (Williams et al 2002), which means that they do not depart from inter-nesting habitat in the short time interval from marking to the in-water survey. Another key assumption of the LP estimator is that the probability of detection is the same between marked and unmarked turtles. The LP estimator is also only based on one resighting event, which could make it less robust than estimates from repeated sampling.

The introduction of modern technologies such as drones and underwater video for counting surveys coupled with artificial intelligence for automated image analysis may provide a more time efficient and reliable mark-resight estimate. Another advantage of drones and underwater cameras compared to the vessel platform is that effect of surface reflections can be suppressed or eliminated. Here we aimed to compare the effectiveness of the vessel observers, drones and underwater video, and to determine if the drone and underwater camera estimates are comparable to the historical data. Our comparison of detectability of marked turtles between methods also provided the opportunity to test the key LP estimator assumption of equal detectability of marked and unmarked turtles. If the probability of detection is the same between marked and unmarked turtles, the ratio of marked and

unmarked turtles should not differ between sampling methods. Finally, we used a repeated sampling study design to (a) determine whether there is a gain in precision in the LP estimator with repeated sampling, and (b) test whether the closure assumption was appropriate.

Methods

Ethics statement

All procedures used in this project were approved by the Raine Island Scientific Advisory group and by the Queensland Department of Agriculture and Forestry Animal Ethics Committee (Permits SA 2015/12/533 and SA 2018/11/660).

Study area

Raine Island is located on the outer edge of the northern Great Barrier Reef and is part of the Raine Island National Park (Scientific). The Wuthathi People and Kemerker Meriam Nation (Ugar, Mer, Erub) People are the Traditional Owners and Native Title holders for this country and are an integral partner of the area's management. Over thousands of years, Wuthathi People and Kemerker Meriam Nation People have held cultural connections to Raine Island through the use of its resources and cultural connections to the land and sea, through song lines, stories, and voyages to the island.

All research was undertaken on the reef waters adjacent to the Raine Island National Park (Scientific) (11° 35' 25" S, 144° 02' 05" E) between November and February during the

117 2013-14 to 2017-18 green turtle nesting seasons (Figure 1). Raine Island reef has a perimeter
118 of approximately 6.5 km and is fringed by coral reefs. Green turtles are the only sea turtle
119 species recorded nesting at Raine Island where the nesting beach is approximately 80 m wide
120 with a circumference of 1.8 km. Nesting is seasonal with the main nesting period from
121 October to April and extremely low rates of nesting for the rest of the year (Limpus 2007).
122 The peak nesting period is from December to January.

123 Nesting aggregations on the beach have been recorded at up to 23,000 turtles at
124 2100hrs on a single night. However, there is extreme variability in Raine Island green turtle
125 nesting numbers from year-to-year that is correlated with the lagged Southern Oscillation
126 Index (Limpus and Nichols, 2000) and displays a 12-fold range of variation.

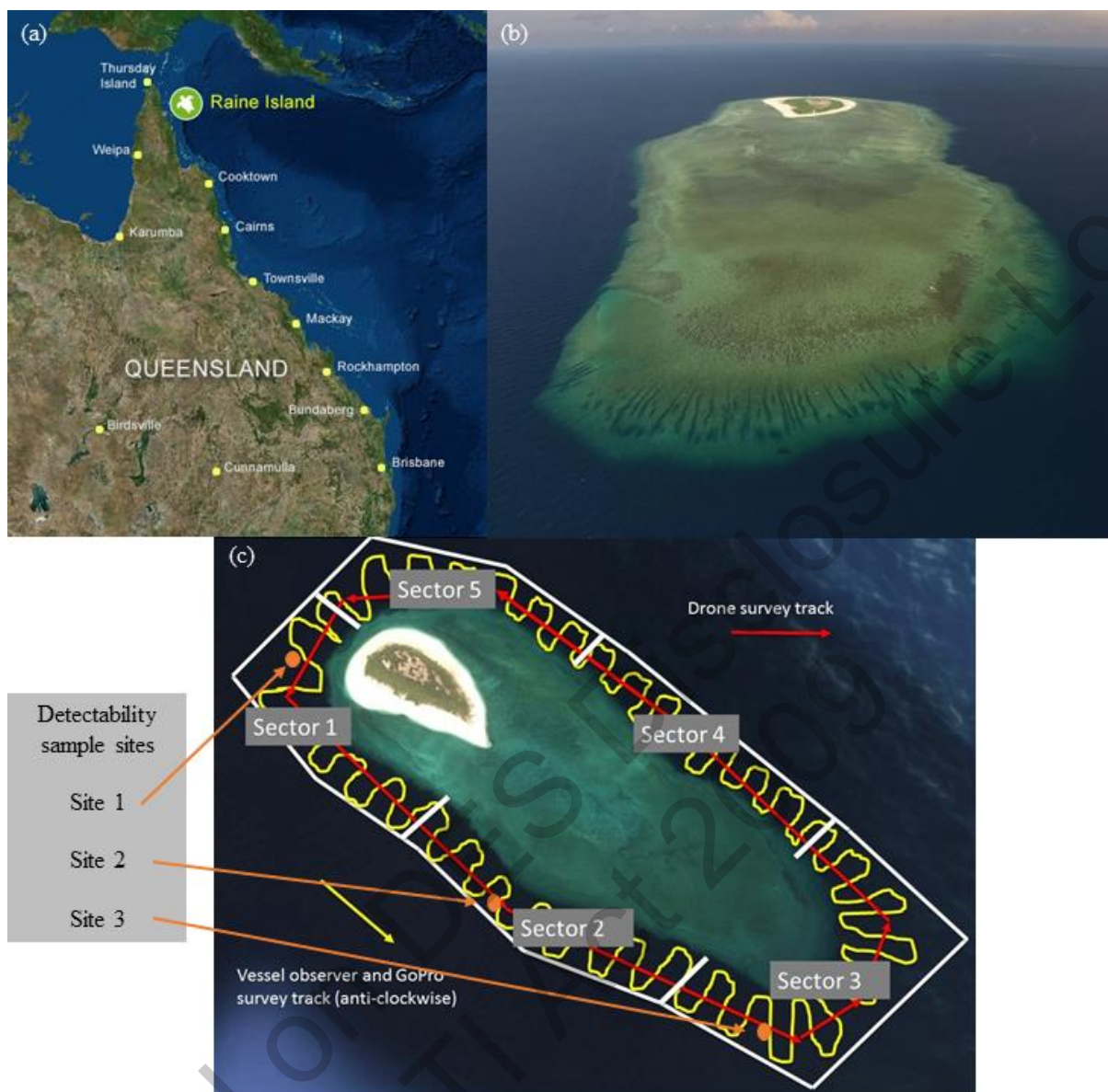


Figure 1. Raine Island location. (a) Location of Raine Island on the northern Great Barrier Reef, Australia, (b) Raine Island reef study site and (c) transect search paths with turtle detectability experimental sample sites marked.

Turtle marking procedure

The carapaces of nesting turtles were painted along the midline with a white stripe approximately 80 cm in length and 20 cm in width, using a 12 cm wide paint roller and

“APCO-SDS fast dry water-based road marking paint” (MSDS Infosafe No. 1WDKY) (Dunstan, 2018). A turtle was selected for painting if the carapace was dry, the carapace did not have a thick coating of algae and the turtle was inland of the beach crest (to provide sufficient time for the paint to dry). When applied under these conditions, the paint adhered to the carapace surface for at least 96 hr. This was confirmed over the three nights following painting of turtles, which provided the opportunity to assess the paint when many painted turtles came ashore to re-attempt nesting. While there was erosion of paint on a small percentage of turtles enough paint always remained to allow identification of turtles as ‘painted’.

Turtles were painted on a single night during turtle survey trips in November (2016), December (2013, 2014, 2016, 2017) and February (2016). All suitable turtles on the nesting beach were painted, up to a maximum of 2000 (Table 1). The upper limit was determined by logistical constraints of personnel stamina and time while the lower limit was influenced by nesting turtle numbers.

Table 1. Summary of survey periods, number of turtles marked and survey methods conducted.

Survey period	Marked turtles	Number surveys		
		Vessel observer	Underwater video	Drone
Dec 2013	2000	6	1	-
Dec 2014	1930	3	3	-
Feb 2016	482	5	6	-
Nov 2016	781	6	6	-
Dec 2016	2000	6	5	3
Dec 2017	2000	2	3	3

In-water detectability of marked and unmarked turtles

We tested the detectability of submerged green turtles using a model, which was constructed from plywood to represent an average-sized nester with curved carapace length of 106 cm (Limpus, 2003) and painted appropriately. The model was lowered on a rope and the depth at which it was no longer discernible as a turtle was recorded. A painted white plywood board the same size and colour as the turtle marks was then attached to the model to simulate a marked turtle. The model was again lowered to determine the depth that the white marking was still obvious. Single samples for each treatment were undertaken at three locations that represented the range of water conditions around the island from coastal aspect (site 1) to between reef channel (site 2) to open ocean aspect (site 3) (Figure 1c).

Mark-resight counting methods

Surveys were undertaken between November and February during 2013 to 2017. Turtles were counted if the turtle shape was discernible and the presence/absence of the painted white mark was recorded. Pre-trials of the Surface observer, Underwater video and Drone methods, indicated that the white markings were visibly obvious and the presence-absence of the mark was never in doubt. All unmarked turtles were considered to be adult female turtles, because previous surveys (Limpus, 2003) demonstrated the minimal presence of adult males and juveniles during the survey period. Wind strength was mostly low during the surveys (average maximum wind strength: 11 knots, range: 1 to 18.7 knots). Water clarity measured at three sites around Raine Island using a standard Secchi disc (30 cm diameter) ranged from 9 to 13 metres.

Surface observer method (SO). A standardised search area was surveyed in the waters surrounding the island on the morning and afternoon of the three days following turtle marking, or less where logistics limited sampling (Table 1 & Fig.1c). A 4.2 m outboard powered rigid hull inflatable vessel with three persons aboard, one recording, one driving and

one counting, was driven along the waters adjacent to the reef perimeter edge in search of the painted turtles (Figure 1c).

Underwater video method (UWV). Underwater video surveys were conducted from the survey vessel simultaneously with the surface observer surveys (Table 1 and Fig.1c & 2a). A GoPro Hero4 camera (frame rate: 25 hz; resolution: 1080; field of view: 127°) with an extended life battery was attached to the hull of the vessel pointing forward and downward, and recorded throughout the entire reef perimeter survey period. Video footage was reviewed by one observer using a single tally counter to record female turtles that could be scored positively for turtle shape outline and for the presence/absence of the white paint mark during separate video replays. Video playback was paused during peak turtle density periods and playback speed adjusted for counting efficiency and accuracy.

Drone method (Drone). Drone surveys were conducted as close to midday as possible to reduce sun glare on the water surface. A DJI Inspire 1 drone with Zenmuse X3 camera (frame rate: 25 hz; resolution: 1080; field of view: 94°) was flown at an altitude of 50 m altitude and a speed of 5 m/s along a path consistent with that of the surface observer and underwater video surveys (Fig. 1c & 2b and S1 multimedia file). This camera and 20 mm equivalent lens provided a horizontal video survey swathe of 90 m at the sea surface. The drone pilot was in the same vessel used for the surface observer and underwater video surveys, which followed closely behind the drone. Video footage was analysed as described for UWV surveys.



Figure 2. UWV and Drone survey image examples. (a) Still image from underwater video December 2017 survey and (b) still image from drone video survey December 2017 at 50 m survey altitude.

Statistical analyses

We first compared detection depths of the turtle model (with and without the painted mark) at the three sites using a Student t test on $\log_e$ transformed Secchi depths. We then compared the relative probability of detecting a marked (painted carapace) turtle between survey methods using a generalised linear mixed effect model (GLMM) with a binomial link function. A mixed-effects design was required because each batch of marked turtles was observed twice daily for five days. The optimal variance structure for the random effects was first explored using the ‘lme4’ package (v lme4 v. 0.999375-35) of the R package (v. 2.13.1; R Development), using residual diagnostics and Akaike’s Information Criterion (AIC) of different mixed models (following Zuur et al., 2009). A model that allowed the slope of the day within nesting season effect to vary resulted in only a marginal improvement in AIC (Akaike Information criterion) over a model that included a nested random effect of diel period (morning or afternoon) within day and nesting season. The relative probability (P) of detecting a painted green turtle (M) was therefore modelled by:

$$M_{ijk} \sim \text{Binomial}(N_{ijk}, P_{ijk})$$
$$\text{logit}(P_{ijk}) = \alpha + \beta(\text{Method}) + b_i + b_{ij} + b_{ijk} + \varepsilon_{ijk} \quad (\text{Equation 1})$$

where the relative probability of detecting a marked green turtle (P) in a given time period (i), day (j) and nesting season (k) is a function of the survey method (Method). Other terms in the model are the total number of turtles that were resighted (N), the general intercept (α), the random intercepts (b) and the residual error (ε_{ijk}). Equation 1 was fitted in a Bayesian framework using the ‘mcmcGLMM’ package and non-informative priors.

We then explored the gain in accuracy and precision in the LP estimator (Williams et al., 2002) from repeated recapture periods using a jackknife procedure. Each jackknife resample

calculated population size as a function of the cumulative average of marked and unmarked recaptures, up to a maximum of six samples by the end of the third day (i.e. samples were taken twice daily for three days).

We estimated conversion factors for the historical estimates as the quotient of the mean population estimates, e.g. the conversion factor for SO to UWV estimate was the SO population estimate divided by the UWV population estimate. To explore how this conversion factor varied with population size, we fitted a linear regression of conversion factor against SO population size. Finally, we compared the number and densities of turtles sighted in each method using general linear models.

Results

In-water detectability of marked and unmarked turtles

The white mark was discernible at an average of 3 metres deeper than the turtle model ($t = 3.61$, $df = 3.8$, $p = 0.026$).

Comparison of detectability between methods

Results consistently demonstrated a higher detection ratio of marked:unmarked turtles using Drone and UWV when compared with the SO method. Analysis of this data translates to significantly higher LP population estimates from the Drone and UWV methods compared to the SO method (Table 2 & Fig. 3).

Table 2. Mean values for total mature female turtles counted and Lincoln Peterson estimates for periods surveyed by each method with standard error.

Survey period	Vessel surface observer			GoPro			Drone		
	Total turtles	Peterson estimate	S.E	Total turtles	Peterson estimate	S.E	Total turtles	Peterson estimate	S.E
Dec 2013	3167.2	58817.8	6095.1	4289.0	102142.9	10969.9	-	-	-
Dec 2014	1002.7	14439.1	1174.1	534.0	18827.3	2470.9	-	-	-
Feb 2016	169.2	4708.7	1116.3	194.8	5398.2	1351.5	-	-	-
Nov 2016	728.8	8838.1	1074.4	1000.5	13180.8	1756.6	-	-	-
Dec 2016	705.5	12377.5	1089.1	1275.8	18135.9	1496.1	1460.0	19682.9	1553.2
Dec 2017	1596.5	20009.4	1618.7	1679.3	33263.1	3198.1	4622.3	37035.0	2334.0

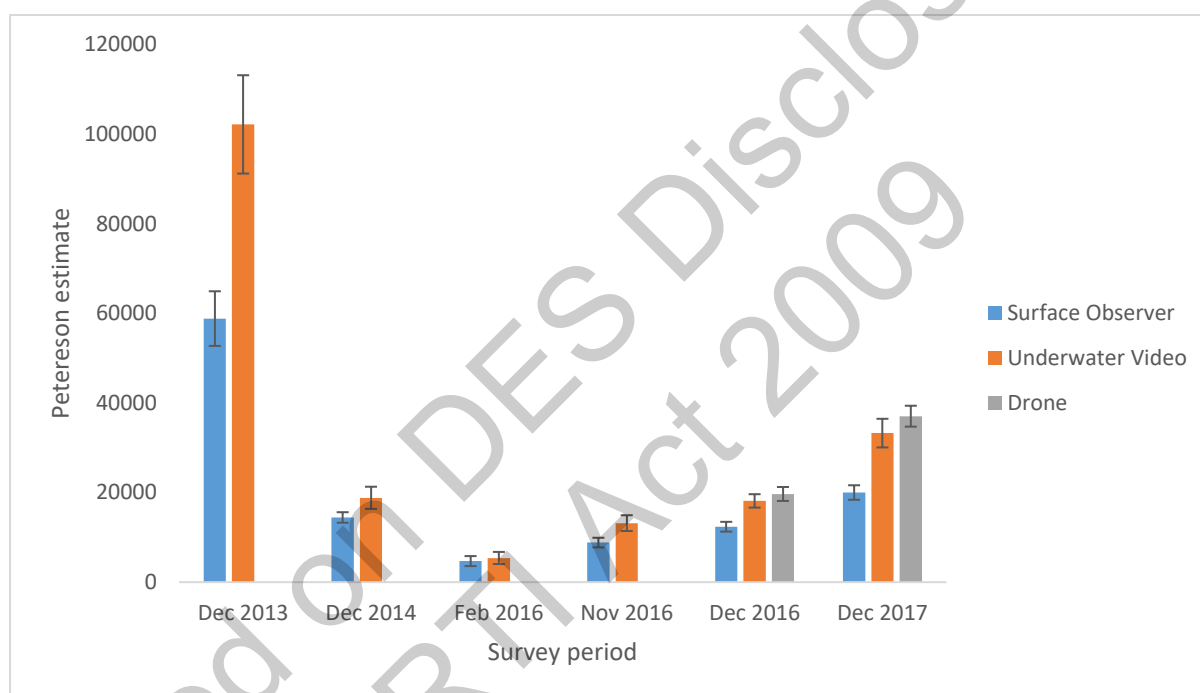


Figure 3. Lincoln Peterson population estimates for periods surveyed by each method.

Error bars shown are ± 1 standard error).

Survey period accounted for 96.8% of variation (highest posterior density intervals from 82.6 and 99.6%) in the relative probability of detecting a marked turtle, compared to negligible variance components associated with sampling day (2.58×10^{-5} %, nested within sampling period) or time of day (5.17×10^{-5} %, nested within sampling day and sampling

period). On average, 9.45 % of turtles detected using the SO method were marked (95% CI: 5.24% to 15.29%), compared to 6.58% for the UWV method (95% CI: 3.21% to 12.02%) and 6.26% for the Drone method (95% CI: 2.86 to 12.07%) (Fig. 4).

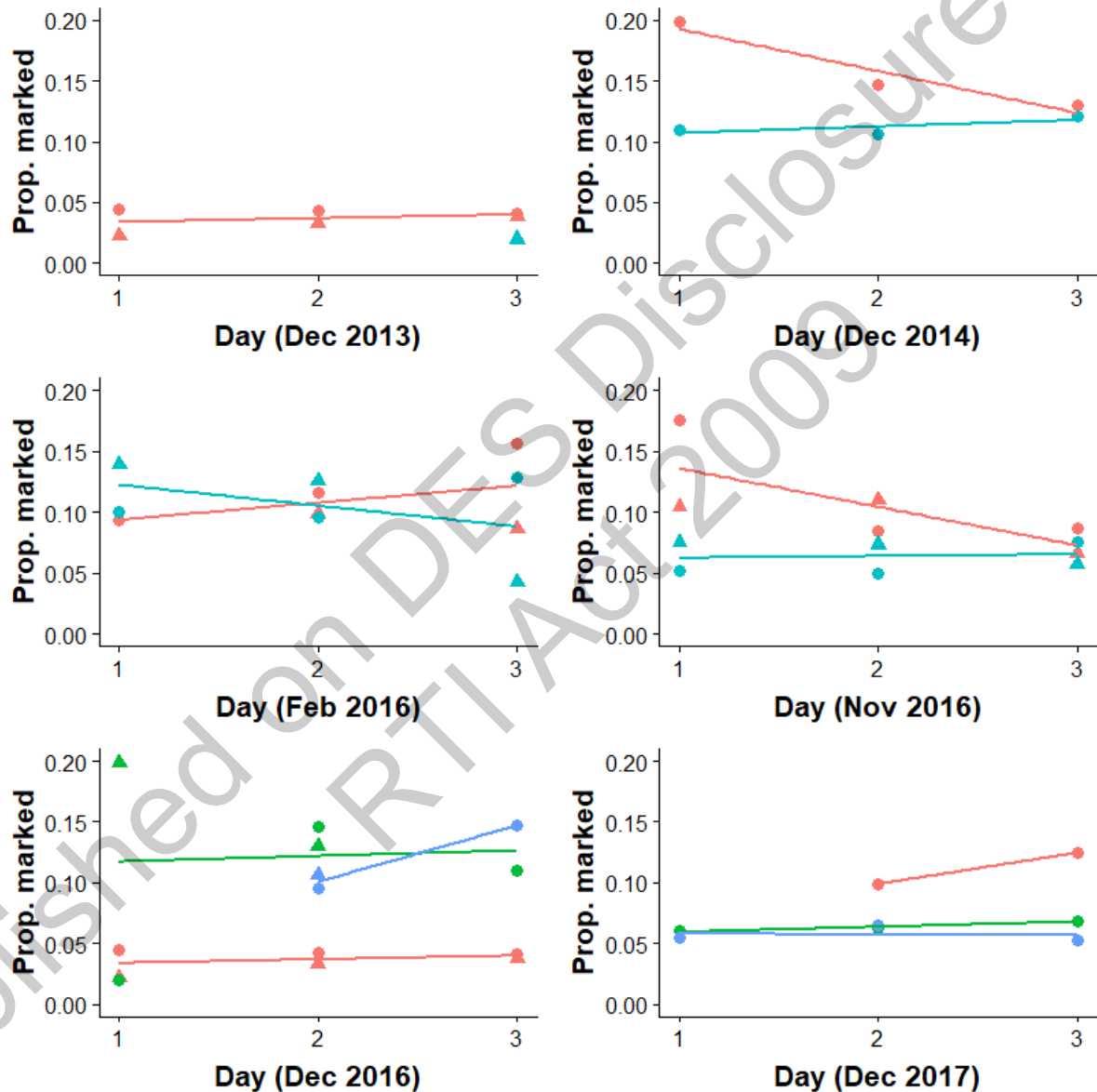


Figure 4: proportion of marked turtles detected for each method. Plot legend is (red: surface observer; blue, underwater video; green; drone) and diel period (circles: morning;

triangles: afternoon). Samples were collected over three successive days on each occasion.

The coloured lines represent the average trend over time for each method and period.

Once variation associated with survey period was accounted for, there was no significant difference in detectability between the Drone and UWV methods (Fig. 5).

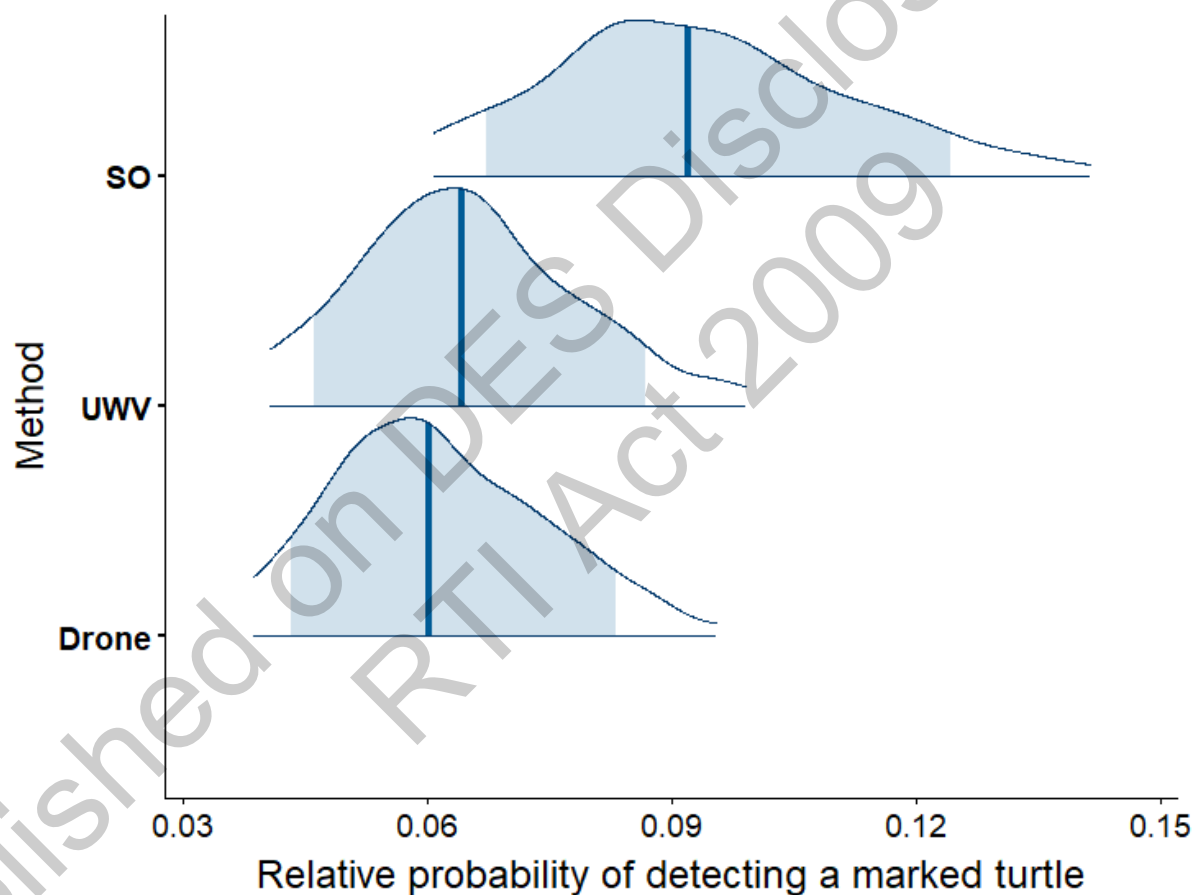
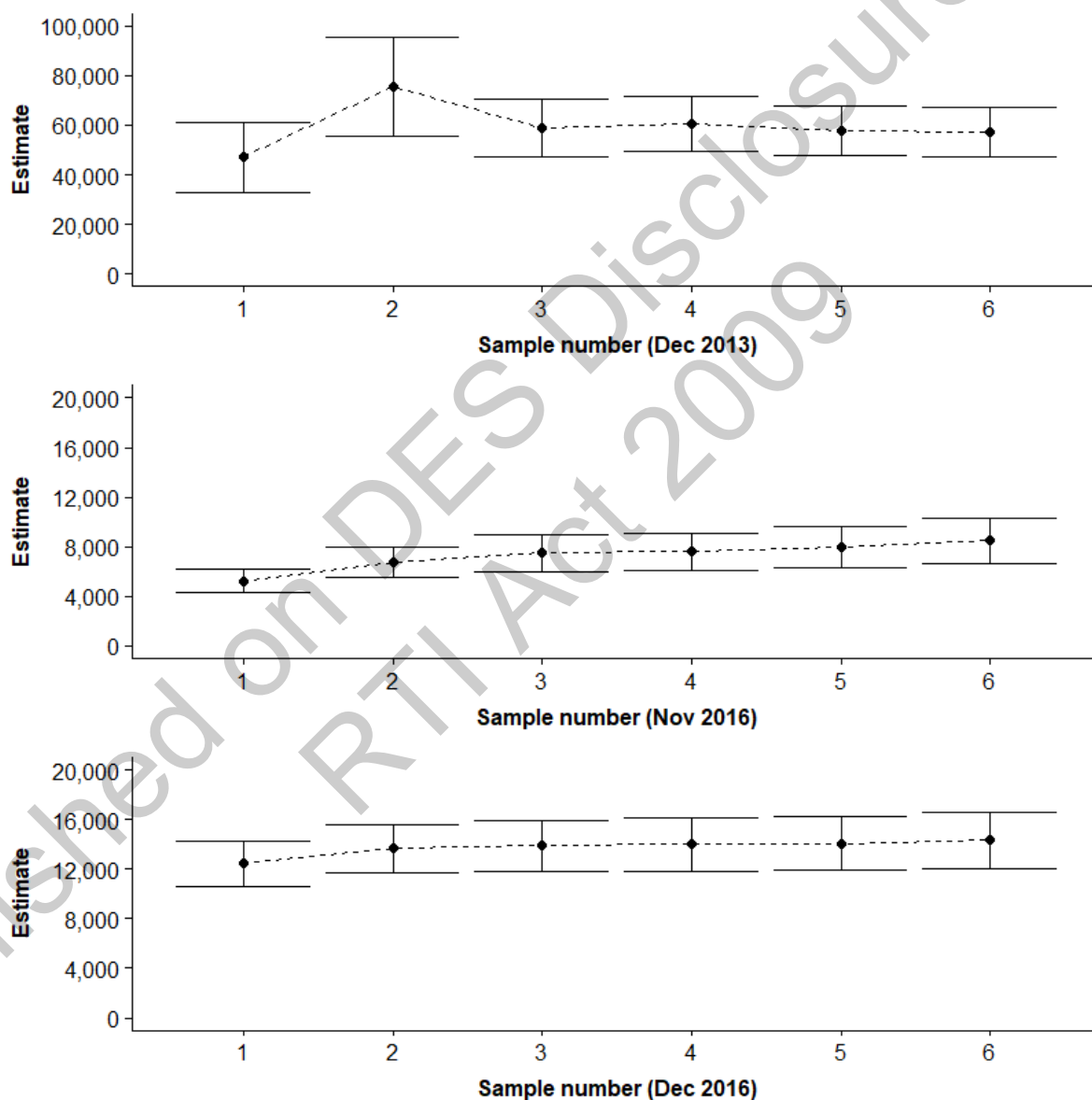


Figure 5: modelled relative probabilities of detecting marked turtles using each method.

(SO, surface observer; UWV, underwater video and Drone). The density plots are computed from the merged posterior draws, where the blue vertical line represents the median and shaded blue areas are the 80% credibility intervals.

279

280 The relative gain in precision from using repeated measurements was similar across
 281 all three survey methods (Fig. 6). There was an obvious gain in using two measurements
 282 (rather than one). Estimates and variances stabilise after three measurements suggesting that
 283 three measurements is sufficient.



284

285 **Figure 6: influence of sample size on the Lincoln-Petersen estimate.** Shown here are the
 286 estimates for the Surface observer method and the three sampling periods for which six
 287 samples were available ($\pm$ 95% confidence intervals).

289 Due to the major differences between Lincoln-Peterson estimates using Surface
290 observer and both Underwater video and Drone techniques the consistency and subsequent
291 application of conversion factors was investigated. Conversion factors were calculated by
292 dividing mean LP estimates between SO, UWV and Drone techniques where surveys using
293 these techniques were conducted during the same time period. These conversion factors were
294 then averaged to provide a mean conversion factor (SO to UWV CF = 1.53 (SD = 0.24), SO
295 to Drone CF = 1.73 (SD = 0.18) and UWV to Drone CF = 1.11 (SD = 0.01)).

296 However, there was considerable variation in detection probabilities between sampling
297 periods, which was likely to be driven by the extreme variability in the density of turtles in
298 the inter-nesting habitat. Conversion factor calculations for Underwater video vs Surface
299 observer methods were compared with population estimates from Surface observer surveys
300 from different seasons. The results showed a significant linear relationship with a fitted
301 regression line $y = 1.3436e^{6E-06x}$ with an r^2 value = 0.577 between UWV:SO conversion
302 factor ratio and the seasonal nesting population density (Fig. 7). F-test results show $F < F$
303 Critical one-tail ($1.58 < 5.05$) with $P = 0.31$. Conversion factor ratio decreases and therefore
304 the agreement in LP estimate between methods is closer during lower density nesting
305 seasons.

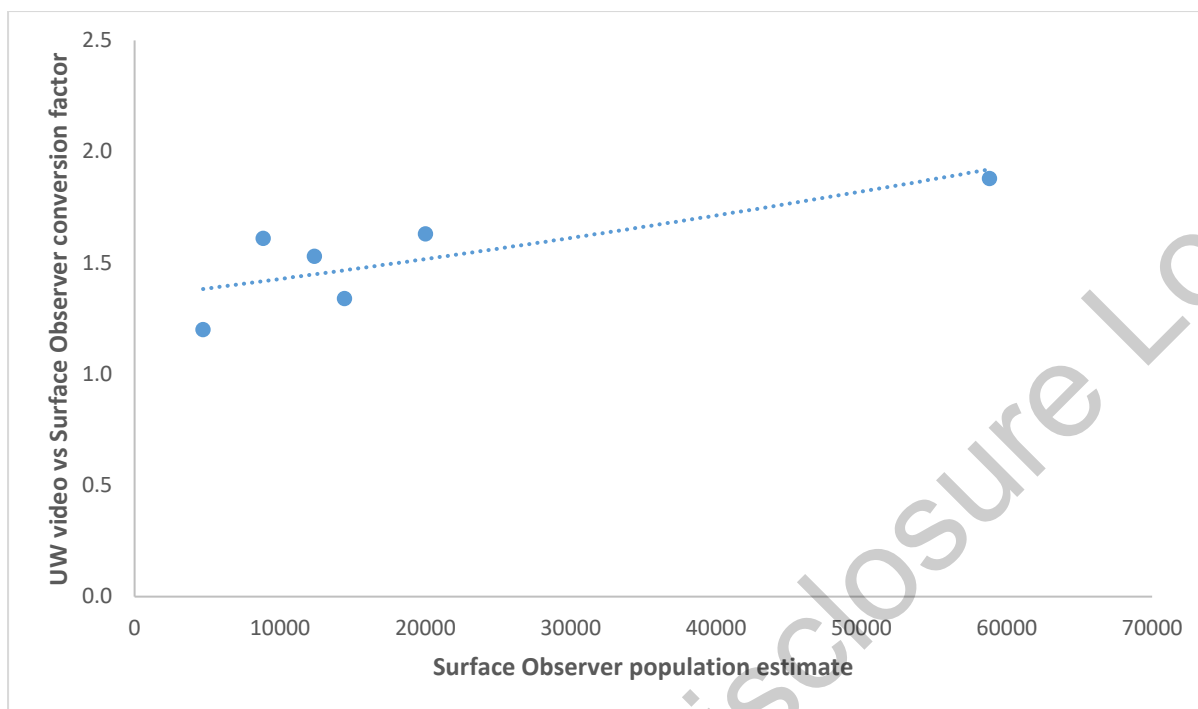


Figure 7. Conversion factor ratio of UVW vs SO methods compared with population

estimates from SO surveys from different seasons. Fitted regression line $y = 1.3436e^{6E-06x}$ has an r^2 value = 0.577

The use of drones to conduct mark/resight surveys is considerably more efficient in survey time (1:2.5 hrs) and personnel commitment (1:3) than the other survey techniques. Drone surveys can also be conducted in more extreme weather conditions ($13:8 \text{ ms}^{-1}$) while still providing quality data (Table 3). Consistent rain negates drone flight options but is not a major impact on the other methods.

Table 3. Comparison of the cost effectiveness and logistical considerations for each turtle count method.

	Equipment Cost	Personnel	Survey time	Viable wind conditions
Vessel observer	Low	3	2.5 hrs	8 ms^{-1}

Underwater video	Low-moderate	3	2.5 hrs	8 ms ⁻¹
Drone	Moderate	1	1 hr	13 ms ⁻¹

*The survey time period refers to the total time to cover transects as shown on Figure 1.

Drones also searched a larger search swath than the other two methods, resulting in 0.585 km² searched on each occasion, compared to an estimated 0.4 km² for the UWV method (assuming a distance of 10 m and a viewing angle of 127°) and 0.5 km² for the SO method (assuming a search radius of 15 from the vessel). The average number of turtles counted by the Drone tended to be higher (3041) than the other methods (SO: 1228; UWV: 1345) (Table 2 and Fig. 8). However, neither total numbers nor densities significantly differed between methods ($\log_e$ total numbers: $D = 2.737$, $df = 2$, $p = 0.375$; $\log_e$ density: $D = 0.458$; $df=2$, $p= 0.795$).

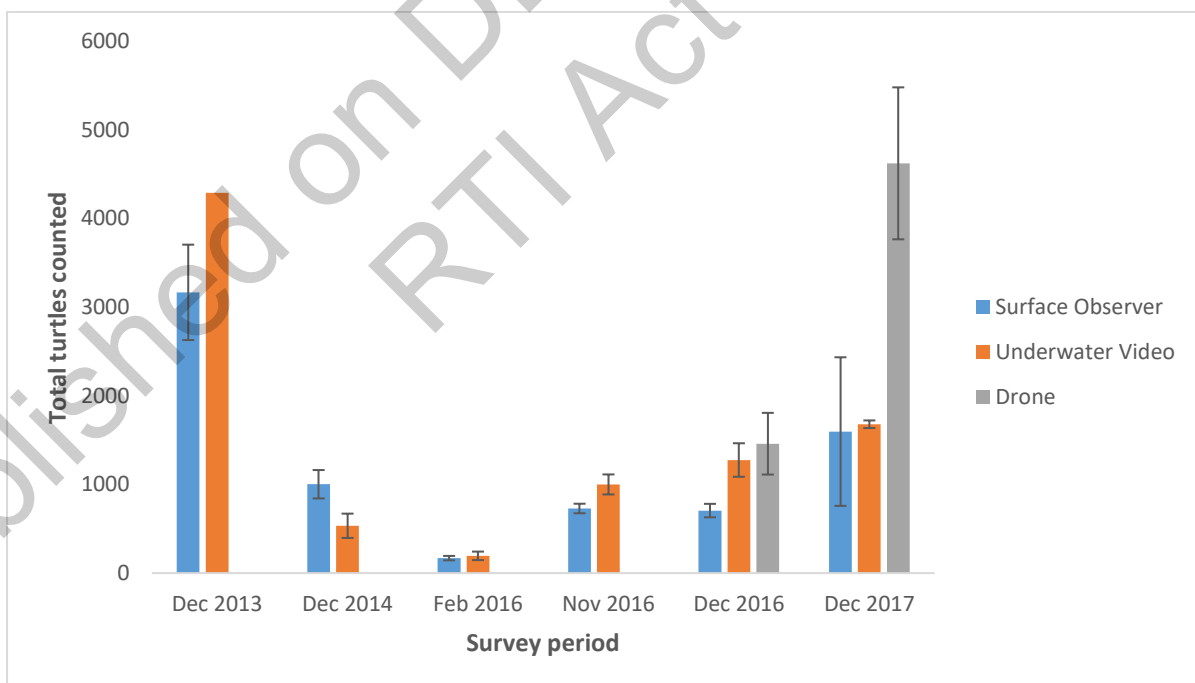


Figure 8. Mean total turtles counted (painted + unpainted) for periods surveyed by each method. Error bars shown are ± 1 standard error.

Discussion

The Drone and UWV methods detected a lower ratio of marked to unmarked turtles than the SO method, resulting in considerably higher estimates of nester abundance. Drones yielded an estimate 1.5x higher than the historical SO method, whereas the UWV method estimated 1.7x more turtles than the SO method. However, there was considerable variation in detection probabilities between sampling periods, which was likely to be driven by the extreme variability in the density of turtles in the inter-nesting habitat, suggesting that robust correction factors would require more sampling across a range of turtle densities.

A key advantage of the UWV and Drone approaches is the ability to review and playback video at speeds most suitable for accurate counts, especially when turtle aggregations were dense. The biased attraction of painted turtles to the observer's eye is not tested or quantified but is considered to be the potential major factor causing the higher percentage of painted turtles recorded by the surface observer, resulting in lower overall population estimates by this method. We posit that the marked differences in the detection rate of marked turtles between the photographic and visual observer methods is due to visual searching limits of human observers. The performance of visual searching, as measured by search accuracy or reaction time, typically declines as the number of objects increases (Palmer 1994; Eckstein et al 2000). Observer fatigue can also influence detection rates (Lardner et al 2019). Further, in analysing complex natural or visually noisy scenes, humans direct visual attention towards regions of high contrast attract visual attention, particularly reflective surfaces such as white paint that represent high luminance contrast (Einhäuser et al

2003). This effect would be even greater in the noisy environment caused by surface reflections or surface disturbance (Lardner et al 2019). In our experiment, the white mark was discernible three meters deeper than the turtle model, suggesting that it may have drawn the attention of an observer who was subsequently able to discern that it was a turtle. Together, these mechanisms may explain why a visual observer had a higher probability of identifying marked turtles than the drone or underwater video approach. This may also explain the fact that detection probability was the most similar between the underwater video and the visual observer in February 2016, when the population estimate was the lowest (Figs. 3&8 and Table 2). We predict that search accuracy would be greater when there are fewer turtles.

The in-water detectability of painted and unpainted turtles indicated that turtles were identifiable to 10 m depth, and that there were no pronounced differences in water clarity between sampling locations that were likely have influenced the results. However, we did not test how the viewing angle and surface conditions influenced detectability. Counting from the SO platform was mostly conducted at an angle to the surface of the water, and hence more subject to interference from glare and surface disturbance than the Drone or UWW method. This may have also influenced the ratio of painted to unpainted turtles detected, because the paint on remains visible during these conditions.

Compared to variation between sampling periods, there was little variation association with the timing of sampling or over consecutive samples. This suggests that the population is closed during sampling, an assumption also supported by the results of two other parallel studies. Firstly, the rate of mortality is low, with a maximum of 0.045% during the sampling period (interpolated from Robertson et al, in prep). Secondly, recently satellite tracking of 40 nesters at Raine Island in the 2017-18 and 2018-19 nesting seasons indicated that the vast majority of turtles remained in the immediate vicinity of the Raine Island reef edge after successful or unsuccessful laying (Mark Hamann, James Cook University, pers. comm.).

The use of drones to conduct mark-resight surveys is considerably more efficient in survey time (1:2.5 hrs) and personnel commitment (1:3) than the other survey techniques. Drone surveys also still provide quality data when the sea-surface state and wind (i.e. 8-13 ms⁻¹ winds) limit the SO or UWW methods, although consistent rain hinders the use of drones. The efficiency of the drone method also facilitates cost-effective optimisation of the study design by using resampling to increase the precision of the population estimates (Fig. 6).

The use of video recording versus the use of overlapping still images to produce a single orthomosaic image by drone were both considered. For this application the benefit of moving video images during counting review provided the ability to adjust playback and pause footage to enable each individual turtle to be assessed as the drone moved past. Movement was then used as part of authenticating turtle recognition, to gain different angle and reflectance aspects to optimise clarity of each turtle and paint mark and to allow the closest point of contact to be used in assessment (S2 table).

Although no other studies have used drones in conjunction with mark-resight to estimate turtle abundance, other studies have use the direct count method, whereby counts of turtles are adjusted for the availability bias (Sykora-Bodie et al 2017). These adjustments were not deemed necessary in the Raine Island study due to the clear waters allowing detection throughout the 10 m depth range the turtles were shown to occur for the majority of time (M. Hamman, unpublished data from time depth recorders deployed on 21 nesters). Even so, our estimates the drone survey are higher than drone density measurements of Olive Ridley turtles at Costa Rica, the only other mass sea turtle nesting aggregation in the world. During the low-medium level nesting season in 2016 and the medium level nesting season in 2017 densities were 2496 ± 1441 turtles · km⁻² and 7901 ± 1465 km⁻² respectively. Low and

403 high-end estimates of turtle density at Costa Rica were $1299 \pm 458 \text{ km}^{-2}$ and $2086 \pm 803 \text{ km}^{-2}$
404 respectively.

405 **Conclusion**

406 In summary, this study indicates that the use of drones for in-water mark-resight turtle
407 population estimation is an efficient and accurate method that can provide an accurate
408 adjustment for historical adult female population estimates at Raine Island. Underwater video
409 may continue to be used as a backup method in case of drone failure or weather restrictions to
410 flight. This study also provides the basis for accurate nesting population estimation, including
411 historical data correction, to inform reproductive success parameters for green turtles at Raine
412 Island. This knowledge is crucial to identify the causes and quantify the levels of nesting and
413 hatching failure and hatchling production. The data is also essential to the evaluation of
414 improvements in reproductive success resulting from conservation management interventions
415 such as re-profiling of the nesting beach and fencing to reduce adult female mortality
416 (Dunstan, 2018).

417

418

419 **Acknowledgements**

420 The Raine Island Recovery Project is a five-year, \$7.95 million collaboration between
421 BHP, the Queensland Government, the Great Barrier Reef Marine Park Authority, Wuthathi
422 and Kemerker Meriam Nation (Ugar, Mer, Erub) Traditional Owners and the Great Barrier
423 Reef Foundation to protect and restore the island's critical habitat to ensure the future of key
424 marine species.

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Supporting information

S1 Multimedia. Drone survey video. Video of drone survey at 50m altitude over waters adjacent to Raine Island reef edge.

S2. Survey area and estimated densities of turtles sighted using each method

Published on DES Disclosure Log
RTI Act 2009

Date : 4/09/2018 2:39:33 PM

From : [redacted] p4(6) Personal information

To : [redacted] p4(6) Personal information "DUNSTAN Andrew"

Cc : [redacted] p4(6) Personal information

Subject : RE: [kl] RE: workshop outline, draft agenda

Hi Paul,

Good work and great video content. I have been working on a PowerPoint including 101 and enhancements. I think that the drone stuff is pretty impressive so I think I will keep my bit to about 15 minutes or thereabouts. I have 27 slides but will move through them pretty quickly.

I won't have it finished until Friday and we can combine them over the weekend if that is ok?

Cheers

[redacted] Personal information

[redacted] 4(6) Personal information

Senior Technical Sales Consultant

Wildlife Computers

P: + [redacted] Direct

m: [redacted] sch4p4(6) Personal information

From: [redacted] sch4p4(6) Personal information @penv.com.au]

Sent: Saturday, 1 September 2018 6:33 PM

To: DUNSTAN Andrew [redacted] 5) Personal information

Cc: [redacted] 6) Personal information

Subject: RE: [kl] RE: workshop outline, draft agenda

Hi Andy [redacted] ersona

I've uploaded some draft workshop slides for your review, edits and additions (there are animations so view in presentation mode):

<https://1drv.ms/f/s!AnzQVPtpab4qhYl1U7Aj1viE4G7VOQ>

You should be able to edit and save the Powerpoint in the OneDrive folder (let me know if there are issues).

I've tried to keep it to interesting footage and pictures and structured based on the excel file I sent around. We might have to cut down on parts once everything is in there. Feel free to make any changes etc.

Cheers

[redacted] 5) Personal information

From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]

Sent: Thursday, 23 August 2018 4:28 PM

To: [redacted] sch4p4(6) Personal information @penv.com.au; [redacted] h4p4(6) Personal information @wildlifecomputers.com>

Cc: [redacted] sch4p4(6) Personal information dbca.wa.gov.au>

Subject: RE: [kl] RE: workshop outline, draft agenda

That sounds like a fine plan Paul. Can also send a few slides, pics and video clips that I think might be relevant to the main drone component if you like.

Cheers

Andy

From: [redacted] sch4p4(6) Personal information @penv.com.au>

Sent: Thursday, 23 August 2018 2:50 PM

To: DUNSTAN Andrew; [redacted] 6) Personal information

Cc: [redacted] 4(6) Personal information

Subject: RE: [kl] RE: workshop outline, draft agenda

Thanks for the additions and edits, Andy. We could touch on the time lapse photos as a potential future use and direction of drones i.e. via tethered power lines (or auto charge/battery change out) and remote automation.

I'm happy to start drafting slides for the drone component (Brief 101 and Issues to Consider) and will contact a few other contributors to the

Example uses section for content e.g. [redacted] sch4p4(6) Personal information I'll send to you for edits and contribution before end of next week. Are you also able to draft the Future Directions slides and content?

Cheers

Paul

From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]

Sent: Thursday, 23 August 2018 7:33 AM

To: [redacted] sch4p4(6) Personal information @penv.com.au; [redacted] sch4p4(6) Personal information @wildlifecomputers.com>

19-211

File F

Cc: sch4p4(6) Personal information dbca.wa.gov.au>
Subject: RE: [kl] RE: workshop outline, draft agenda

Hi guys

Have done a few suggested additions and changes to [redacted] excellent workshop outline. Please feedback with suggestions and other changes, especially relating to timing to ensure adequate presentation time and that prioritisation is ok.

Looking forward to a very interesting session

Cheers

Andy

From: sch4p4(6) Personal information @penv.com.au>
Sent: Monday, 20 August 2018 4:56 PM
To: DUNSTAN Andrew (6) Personal infor
Cc: sch4(6) Personal inform
Subject: RE: [kl] RE: workshop outline, draft agenda

Hi Andy,

Good to chat earlier. See attached for a workshop outline that I've quickly drafted to help us structure the 1 hr of time we have. Please feel free to chop and change as you see fit. I've just put in my thoughts for the content and duration of each section. [redacted] had his own ideas for the satellite tracking content (I just included some items we mentioned in our Skype call on Friday).

Cheers

b) Personal in

From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]
Sent: Monday, 20 August 2018 8:53 AM
To: sch4p4(6) Personal information @penv.com.au>; sch4p4(6) Personal information @dbca.wa.gov.au>; sch4p4(6) Personal information wildlifecomputers.com>
Subject: RE: [kl] RE: workshop outline, draft agenda

Thanks [redacted] that's be great. Best contact is [redacted]

Cheers

Andy

From: sch4p4(6) Personal information @penv.com.au>
Sent: Monday, 20 August 2018 10:49 AM
To: DUNSTAN Andrew; sch4p4(6) Personal information
Subject: RE: [kl] RE: workshop outline, draft agenda

Hi Andy,

Hope you're feeling better. I can update you on the Friday discussions. Let me know your best contact number and I'll call this arvo.

Cheers

Personal

From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]
Sent: Monday, 20 August 2018 6:43 AM
To: sch4p4(6) Personal information @dbca.wa.gov.au>; sch4p4(6) Personal information @wildlifecomputers.com>; sch4p4(6) Personal information @penv.com.au>
Subject: RE: [kl] RE: workshop outline, draft agenda

Hi Tony, so sorry for missing this [redacted] so have just found this message and meeting request. Hope you had a good discussion and ready to provide my input if that works now?

Cheers

Andy

From: sch4p4(6) Personal information dbca.wa.gov.au>
Sent: Thursday, 16 August 2018 8:32 PM
To: [redacted] DUNSTAN Andrew; DUNSTAN Andrew; [redacted]
Subject: Re: [kl] RE: workshop outline, draft agenda

Hey Andy, are you still on field work or at conference?

From: [redacted] <[redacted]@wildlifecomputers.com>

Sent: Thursday, 16 August 2018 6:15:33 PM

To: [redacted] (6) Personal info

Subject: [kl] RE: workshop outline, draft agenda

Hi [redacted] Personal

Icarus has been in the planning stages for about 8 years now. It consists low power solar GPS units that transmit at predetermined times to passing satellites. Although it has been hyped up and attracted lots of EU funding, it is unknown if it will work or not. It was allegedly going to be on the ISS 3 years ago. I guess we will see how it goes on birds.

However it is only suitable for terrestrial animals that have continuous satellite view. Obviously sea turtles don't fit that mold.

Like all technologies we are monitoring it to see how it progresses.

Did you hear from Andy about our call tomorrow?

Cheers

[redacted] Personal info

[redacted] (6) Personal info

Senior Technical Sales Consultant

Wildlife Computers

P: [redacted] (6) Personal info Direct

m: [redacted] (6) Personal info

From: [redacted] <[redacted]@dbca.wa.gov.au>

Sent: Thursday, 16 August 2018 5:54 PM

To: [redacted] (6) Personal info

Subject: RE: workshop outline, draft agenda

<http://www.abc.net.au/news/2018-08-16/spacewalkers-install-bird-trackers-by-hand/10126118>

This is news but is this at all relevant to sea turtle tracking?

The information in this email together with any attachments is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. There is no waiver of any confidentiality/privilege by your inadvertent receipt of this material. Any form of review, disclosure, modification, distribution and/or publication of this email message is prohibited, unless as a necessary part of Departmental business.

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Date : 20/09/2018 8:01:17 PM

From : sch4p4(6) Personal information

To : "DUNSTAN Andrew"

Cc : 4p4(6) Personal information, "Tags"

Subject : RE: [kl ts] using WC Portal offline

Attachment : turtles in water poilão 1.png;turtles in water poilão 2.png;

Thanks Personal

Hello Andy,

I saw (6) Personal information talk at the STS in Kobe, on the use of aerial water surveys + beach surveys to assess population abundance at Raine Isl. So I guess you're the one doing the aerial surveys?

I also work in a small island with high nesting density in West Africa, Guinea-Bissau (although nothing compares to RI in terms of density). Because the water is so murky I didn't think we could count turtles in it, but this year we flew over and it was very cool, we could spot many turtles! see attached some snapshots.

This was a low year(2018), in 2019 and 2020 we expect much more.

Are you using any software for automated counts? Don't you have an issue with double counts?

Best,

Personal

From: sch4p4(6) Personal information @penv.com.au]

Sent: 20 September 2018 09:44

To: sch4p4(6) Personal information @exeter.ac.uk>; Tags <Tags@wildlifecomputers.com>

Cc: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Subject: RE: [kl ts] using WC Portal offline

Hi Personal

I think Andy is the best person to respond as he has been doing some amazing work involving UAVs and marked turtles for a CMR study at Raine Island in Queensland. I'm just a lowly consultant using a UAV for a nesting beach track census, with no offshore use so far!

Over to you, Andy!

Cheers

Personal i

4p4(6) Personal information

General Manager

Pendoley Environmental Pty Ltd

Marine Conservation - Environmental Services

Address: 12A Pitt Way, Booragoon, WA 6154

Office: +61 8 9330 6200

Mobile: (6) Personal information

Email: (6) Personal information@penv.com.au

Web: www.penv.com.au

Twitter: @pendoley_turtle

From: sch4p4(6) Personal information @exeter.ac.uk]

Sent: Monday, 17 September 2018 6:56 PM

To: Tags <Tags@wildlifecomputers.com>

Cc: sch4p4(6) Personal information penv.com.au>; DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Subject: RE: [kl ts] using WC Portal offline

Hi Personal i

Thank you for your email ☺

All is well and I am now addicted to checking our turtles with SPOT6 tags! One of them is already far north! We will deploy the remaining 12 tags in October. Very exciting and I am so happy that they work fine and we are getting loads of data.

Thank you for putting us in contact.

Hello Personal hello Andy,

I was wondering if you have some novel approach using UAVs + tagging?

Or are you using UAVs for aerial surveys and then a software for automatic counting? Are you developing a new software?

We are very interested in aerial surveys, as this year we did an experiment with a UAV and saw loads of turtles in the water.

But also we have this dream of flying a drone over our turtles and spotting tags ☺

Best,

b) Personal in

From sch4p4(6) Personal information [redacted]@wildlifecomputers.com] On Behalf Of Tags
Sent: 17 September 2018 04:16
To sch4p4(6) Personal information [redacted]@exeter.ac.uk>
Cc sch4p4(6) Personal information [redacted]@penv.com.au>; DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Subject: [kl ts] using WC Portal offline

Hi [redacted] Personal

I trust that you are well!!

Our marketing manager drew my attention to your response to a Twitter post about the workshop in Australia. [redacted] Personal and Andy handled the Drone section of the workshop, so they may wish to answer. (Sorry for the email but I don't have a Twitter account).

There were definitely videos of turtles being surveyed in the water. Also some automatic identification and counting via software. I am sure that [redacted] Personal or Andy will be able to help you.

All my best

b) Personal in

p4(6) Personal inform

Senior Technical Sales Consultant

Wildlife Computers

P: [redacted] Direct

m: [redacted] sch4p4(6) Personal informat





Date : 21/06/2018 3:45:26 PM

From : "Tyrone Ridgway"

To : "DUNSTAN Andrew"

Subject : RE: Boeing and automated seabird counts

Attachment :

image001.jpg;image002.jpg;image003.jpg;image004.jpg;image005.jpg;image006.jpg;image007.jpg;image008.jpg;image009.jpg;

Hey Andy

Just following up. Petra will likely be in touch on this as falling well into research and development which sits under her portfolio/ She has also worked with Mike from Boeing in the past and works closely with Matt at QUT.

Let me know if you don't hear anything soon and I can chase up. I will continue to follow and contribute as needed and keen to see where it lands.

Thanks again.

Tyrone

Dr Tyrone Ridgway

Reef Program Manager | Great Barrier Reef Foundation

d [b4(6) Personal information] m [b4(6) Personal information] e tridgway@barrierreef.org | barrierreef.org
Level 13, 300 Ann Street, Brisbane QLD 4000 | GPO Box 1362, Brisbane QLD 4001



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From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]

Sent: Monday, 11 June 2018 9:21 AM

To: Tyrone Ridgway <tridgway@barrierreef.org>

Subject: RE: Boeing and automated seabird counts

Excellent fast work mate

Cheers

Andy

From: Tyrone Ridgway <tridgway@barrierreef.org>

Sent: Monday, 11 June 2018 9:18 AM

To: DUNSTAN Andrew

Subject: Re: Boeing and automated seabird counts

Hey Andy

I did hear back from [b4(6) Personal information] ver the weekend and will reconvene with a [b4(6) Personal information] and [b4(6) Personal information] later in the week. Currently on my way to Lady Elliot so out of range until Wed arvo.

More soon.

Tyrone

On 11 Jun 2018, at 9:15 am, DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au> wrote:

Thanks Tyrone, will await your advice but sounds exciting

Cheers

Andy

From: Tyrone Ridgway <tridgway@barrierreef.org>
Sent: Thursday, 7 June 2018 2:31 PM
To: DUNSTAN Andrew; (b) (6) Personal information
Cc: ALDERSON Tina; ROBERTSON Katharine
Subject: RE: Boeing and automated seabird counts

Hi Andy and (b) (6) Personal information

Thanks again for your emails. I agree that this represents a great opportunity that is worth pursuing. I have had a chat with (b) (6) Personal information and she has recommended that we (GBRF) reach out to (b) (6) Personal information as a first pass and then see where things go.

As such, I will do that and follow the correct channels and then keep you updated with progress and hopefully see how we can assess/progress this opportunity.

More soon.

Cheers.

Tyrone

Dr Tyrone Ridgway
Reef Program Manager | Great Barrier Reef Foundation

d (b) (6) Personal information m (b) (6) Personal information | e tridgway@barrierreef.org | barrierreef.org
Level 13, 300 Ann Street, Brisbane QLD 4000 | GPO Box 1362, Brisbane QLD 4001

<image001.jpg>

<image002.jpg><image003.jpg><image005.jpg><image006.jpg><image007.jpg><image008.jpg><image009.jpg><image010.jpg>

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From: DUNSTAN Andrew [<mailto:Andrew.Dunstan@des.qld.gov.au>]
Sent: Monday, 4 June 2018 1:38 PM
To: (b) (6) Personal information @boeing.com>; Tyrone Ridgway <tridgway@barrierreef.org>
Cc: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>
Subject: RE: Boeing and automated seabird counts

Thanks (b) (6) Personal information that's great and thanks for the additional info and hopefully lack of hurdles. Will await a GBRF response from Tyrone to see how we move forward

Cheers

Andy

From: (b) (6) Personal information @boeing.com]
Sent: Monday, 4 June 2018 11:49 AM
To: DUNSTAN Andrew; tridgway@barrierreef.org
Cc: ALDERSON Tina; ROBERTSON Katharine
Subject: RE: Boeing and automated seabird counts

G'day Everyone,

Andy, that's a great summary of Friday discussion!

(b) (6) Personal information to supplement what Andy has already mentioned, I'm incredibly interested in the Raine Island project as it's a

unique intersection of mine and [redacted] passion.

Andy is also correct that my personally developing a prototype as a side project will take me 6-12 months and avoiding a COI is challenging, as my division in Boeing (PW-I) is working in the same solution space.

Phantom Works – International (PW-I) is recognised as Boeing's International rapid prototyping arm, with a strong focus on Autonomous Systems, headquartered here in Brisbane Australia. Without going into detail, we've made some pretty awesome progress in machine learning of UAV imagery and I genuinely believe the Boeing partnership would be the best path forward. I've also recently been informed that there shouldn't be any hurdles around defence sensitivity for this project, which is good news.

Discussion with our PMs and leadership team is still ongoing, and I will keep you informed on further progress.

I'm looking forward to this opportunity, hope we can make this happen!

Cheers,

[redacted] p4(6) Personal information
Software Engineer
Corvus, Phantom Works - International

P: +61 7 3306 3628 | M: [redacted] p4(6) Personal information
E: [redacted] 6) Personal information@boeing.com | GPO Box 767, Brisbane QLD 4001



PLEASE CONSIDER THE ENVIRONMENT BEFORE YOU PRINT THIS E-MAIL

<image011.png>

From: DUNSTAN Andrew [<mailto:Andrew.Dunstan@des.qld.gov.au>]
Sent: Monday, 4 June 2018 10:32 AM
To: tridgway@barrierreef.org; [redacted] sch4p4(6) Personal information@boeing.com>
Cc: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>
Subject: Boeing and automated seabird counts

Hi Tyrone and [redacted] just following up on our separate chats on Friday about the potential for involvement of [redacted] and Boeing in the Raine project and specifically automated image analysis. I'll summarise where this is at right now and also where I see it hopefully progressing to.

At present we have historical drone data for the past 2 years for nesting seabird census and topographic mapping. This is based around overlapping drone images for the entire island at 60m altitude looking directly down with high resolution DJI Inspire (model 1 and then model 2) camera. Images have been rectified to produce Digital Elevation Models and Photomosaic images for the entire island at 2cm resolution. Very initial work has been done to assess the ability to identify seabirds to species and thereby conduct census counts. Also important is the ability to differentiate nesting birds (on eggs or chicks) from 'loafers' (non-nesters). Some further work is planned to be done in the next 2 weeks to use subtraction analysis, where three flights are conducted to then only retain the birds which have not moved during this time – the assumption being that they are nesters.

The next phase is to develop automated image analysis and image management for the task of nesting seabird census. There is nothing available at present to use for this and therefore we need to develop the learning algorithms and programming. We are currently doing this for turtle counts and behaviour in partnership with [redacted] 4(6) Personal information at QUT.

It was suggested by [redacted] p4p4(6) Personal information who is a ranger with QPWS Cairns and a valued member of the Raine team that her [redacted] Personal information has the skills and is keen to help. I met with [redacted] on Friday to discuss how this might all work.

[redacted] was very pleased with how well progressed we are with drone flight programming and tasking as well as topographic image data management and analysis. He feels that he has the skills to take this to the next phase using Learning Engine technologies developed by Boeing (is this right [redacted] are these Boeing IP) to automatically identify to species level and conduct counts. He has the skills and is able to do this himself over an estimated 6-12 month period of volunteer time. However [redacted] suggests that it might be an even better option to work in partnership with Boeing at a higher level with the 'expert' team where this outcome would probably be achievable in a few weeks of work. In this case it would be excellent to ensure that [redacted] is part of this team to support his further development in this field and his inspiration to enable this to happen.

Going with the [redacted] volunteer option would necessitate ensuring there are no conflict of interest issues with Boeing before going any further.

The bigger picture version of Boeing partnership would I think be best facilitated through GBRF close contacts with Boeing on the Chairman's panel. I did have long discussions with [redacted] p4p4(6) Personal information from Boeing at the Chairman's panel meeting two years ago about his keenness to be involved in the Raine project and particularly drone technology. These discussions continued but then GBRF advised that it was best for AIMS to drive GBR partnership ideas with Boeing so I stepped back from further discussions. I think it may be ideal timing with a defined project for GBRF to approach Boeing with this plan to seek their involvement.

I hope I have grasped the essence of this **Personal** but please correct and add elements, including the "Phantom"(?) project of Boeing which is the advanced Automated Image Analysis team we would look to work with. Also how much of this technology may be 'secret squirrel' and/or military IP and therefore not available to us in even a partnership plan? I think it would be good to bring **Personal** into this conversation as she was certainly around the Boeing involvement interest and potential AIMS partnerships bigger picture.

Enough of a rave for now! Hope it makes sense and I do feel it is a very exciting opportunity.

Cheers

Andy

<image013.png>

Dr Andy Dunstan

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P **(6) Personal info**

Level 5, 400 George St, Brisbane, QLD 4000

www.npsr.qld.gov.au/raineisland

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Date : 22/06/2019 12:34:02 PM

From : "DUNSTAN Andrew"

To : "HEAD Damien" , "ALDERSON Tina" , "HEMSON Graham" , "ORGILL Dave"

Subject : RE: Bottlenose reactions to drones paper

Attachment : image001.png;image004.png;image005.jpg;image007.png;

Thanks Alan, good info

From: HEAD Damien <Damien.Head@des.qld.gov.au>

Sent: Wednesday, 19 June 2019 10:52 AM

To: ALDERSON Tina; HEMSON Graham; ORGILL Dave; DUNSTAN Andrew

Subject: FW: Bottlenose reactions to drones paper

fyi

From: DYBALL Alan <Alan.Dyball@des.qld.gov.au>

Sent: Wednesday, 19 June 2019 10:31 AM

To: HEAD Damien

Subject: FW: Bottlenose reactions to drones paper

FYI below (and attached)



Alan Dyball

A/Manager - North Stradbroke & Moreton Island (Minjerribah & Mulgumpin)
Program

Great Barrier Reef - Marine - Coastal and Islands Directorate
Queensland Parks and Wildlife Service and Partnerships
Department of Environment and Science

Ph - 07 3199 7615

Level 5, 400 George Street, Brisbane Qld 4000



From: DYBALL Alan

Sent: Wednesday, 19 June 2019 10:27 AM

To: HEMSON Graham; LOW Jesse; ORCHARD Richard; BALL Tina; HOSECK Steve

Subject: FW: Bottlenose reactions to drones paper

FYI attached – another interesting paper as the invasion of drones rolls on.

In summary, drones impacted on cetaceans (in this case Bottlenose Dolphins were the subjects) when drones were flown at 10m around the animals.

At 25 – 40m the animals were basically not concerned.

Paper may be useful guide for when conditioning permits.

A



Alan Dyball

A/Manager - North Stradbroke & Moreton Island (Minjerribah & Mulgumpin)
Program

Great Barrier Reef - Marine - Coastal and Islands Directorate
Queensland Parks and Wildlife Service and Partnerships
Department of Environment and Science

Ph - 07 3199 7615

Level 5, 400 George Street, Brisbane Qld 4000



Date : 26/08/2019 2:04:58 PM
From : "DUNSTAN Andrew"
To : "DUTOIT Julie" , "ALDERSON Tina"
Subject : RE: Boundaries of the petrel nesting colony on Raine Island
Attachment : image001.png;image002.png;image004.jpg;
No worries, thanks Julie

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>
Sent: Friday, 23 August 2019 11:05 AM
To: ALDERSON Tina; DUNSTAN Andrew
Subject: FW: Boundaries of the petrel nesting colony on Raine Island

Hi Tina and Andy,

I've put the gear required for the acoustic work in a clear plastic box, under the front starboard bunk on Reef Ranger (next to the spotoscope).

As per below we just need to:

- Install 2 new acoustic units at R16 and R19 (there are some other acoustic poles without units attached but they are low priority for now).
There are 2 units labelled 16 and 19 that already have the batteries and SD cards in them.
They will need to be turned on and set – see instructions attached for installing acoustics (there is a laminated version of this in the box).
A microphone will also need to be attached.
I've included a tied down strap and zippy ties to secure to each pole.
- Check R22 (if possible without disturbing nesting frigates) to see if the batteries and SD cards need changing.
There are spare batteries and an SD card in a bag in the box.

Regards,
Julie Dutoit
4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Friday, 9 August 2019 9:15 AM
To: DUTOIT Julie; ALDERSON Tina
Cc: MCDOUGALL Andrew (Rockhampton); ROBERTSON Katharine; DSOUZA Marshall
Subject: RE: Boundaries of the petrel nesting colony on Raine Island

Thanks Julie for working through that and all sounds good. If you can give Tina the spare 2 acoustic recorders and ensure the acoustic gear is there as well for the next trip we can do the swap and replace the SD card. No battery changes or other downloads required I think as these were done in July. Have added Marshall in this chat if you could get back to us about the availability and timing for the imagery. The Matrice was used in July and should have an excellent series of 3 days of high res orthomosaics. We'll sort out what is ready now, add the acoustic circles (Marshall?) and get it on to you.

Cheers

Andy

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>
Sent: Thursday, 8 August 2019 4:19 PM
To: DUNSTAN Andrew; ALDERSON Tina
Cc: MCDOUGALL Andrew (Rockhampton); ROBERTSON Katharine
Subject: RE: Boundaries of the petrel nesting colony on Raine Island

Hi Andy and Tina – I've been talking with Andrew and Graham about the acoustic program on Raine. We haven't had any analysis back from the States yet, so it is too soon to say if acoustics will be successful or not on Raine Island... so we don't want to remove any of the poles yet.

If we get good correlations from the acoustics we will be able to leave them recording year round or seasonally and there won't be the requirement to keep counting around each unit. This is happening for the wedge-tailed shearwaters on NW Island - we are in the 3rd year where we have just used acoustics and haven't had to do on ground counts for the shearwaters. If we don't get good correlations, or if drones prove to be more accurate, then we may need to remove the poles down the track – I realise that this may be difficult without access to machinery, but we will have to cross that bridge if we get there.

There is one area where Andrew is concerned about potential disturbance to nesting frigatebirds. That's the area along the vegetated ridge near units R22, R23 and R24. Due to the thicker vegetation in that area, great frigatebird nests are sometimes not visible until the observer is in the immediate vicinity of one. This would only be a problem if birds are flushed from nests with eggs. Nests with chicks or young would be less likely to be disturbed by gulls. So we have decided to not count around those 3 acoustic units this summer and see if we can just use drone counts instead. I will amend the field sheet to remind everyone of this.

On the last trip there were a couple of units not working – R1, R8, R16 and R19.
I have 2 spare units – would there be time to install these for us on the upcoming August trip at R16 and R19?
The other 16 stations are on the beach so not a high priority to replace them after turtle nesting season.

We are also not sure if the SD card got replaced at R22 – so also hoping someone could check this and replace if needed.
If the frigates have already arrived in August the unit would need to be checked at night to minimise disturbance (not sure if you are doing any night work on this trip or not?)

We are also keen to start doing counts from the drone images around the acoustics to see if they correlate with the on ground counts. I believe Marshall sch4p4(6) Personal information but please can you send Andrew and I these images when they become available. The dates that we should have both high enough quality images and ground counts are:

From the Matrice:

- June 2018
- April 2019
- (Was Matrice also used to film in June?)

Hoping we can also get acoustic images from the whole island footage for:

- Dec 2017
- April 2018

Regards,
Julie Dutoit
4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Monday, 5 August 2019 8:18 AM
To: STEWART David; ALDERSON Tina; ROBERTSON Katharine; MCDOUGALL Andrew (Rockhampton); DUTOIT Julie
Subject: RE: Boundaries of the petrel nesting colony on Raine Island

Thanks David.

While we're on seabird and sand moving topics. Andrew McDoug, Katherine and I talked about the acoustic monitors and reviewing how many are realistically required now and in which locations. Removal of unnecessary units would reduce seabird impact from counts and also greatly reduce work effort. The upcoming trip would be an ideal time to remove the units and mounting poles if you could maybe send a map of the loggers and indicate which ones to be removed and which to remain thanks Andrew.

Cheers

Andy

From: STEWART David <David.Stewart@des.qld.gov.au>
Sent: Friday, 2 August 2019 10:00 AM
To: ALDERSON Tina; ROBERTSON Katharine; DUNSTAN Andrew; MCDOUGALL Andrew (Rockhampton); DUTOIT Julie
Cc: HODGON John; RYAN Samantha
Subject: Boundaries of the petrel nesting colony on Raine Island

Good morning all

This kmz file outlines the known boundary for the breeding area of the petrels on Raine Island, excluding the one pair that nested on the cliffs further towards the boat mooring during 2017 and 2018 breeding seasons.
The area where these petrel nests have been found above cliff have been in amongst the grasses and dense mat of scrubs, such as *Achyranthes aspera*, *Sesbania cannabina* and *Lepturus sp*. Petrel nests in the beach dunes have been found amongst the *Lepturus sp*. No petrel nest have been recorded in association with the taller denser vegetation that is growing on the sand ridge surrounding the central depression of the island.

Regards
David



Dr David Stewart

Senior Conservation Officer
Threatened Species Operations
Wildlife and Threatened Species Operations | QPWS & Partnerships
Department of Environment and Science

P 07 3330 5496 M (6) Personal info
Level 5, 400 George St, Brisbane QLD 4000
GPO Box 2454, Brisbane QLD 4001



Date : 9/07/2019 4:08:58 PM
From : "HURREN Kerry-Anne"
To : "BRADSHAW Steven"
Cc : "HESS Lee" , "COOK Tayce" , "TEALEBROWNE Callum" , "DUNSTAN Andrew" , "ARMSTRONG Warrick"
Subject : RE: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]
Attachment : image001.png;image002.png;image004.png;

Thank you Steve.

With the return of Reef Ranger and thus the return of both of the drones this week, I will replace the 'Can I fly there app?' with the 'OpenSky' app as advised by CASA (unless you have already?).

Also, I looked at the Mavic Pro tablet and it does not have SIM capability. Thus, we are still faced with the issue of it being registered to a person rather than an entity. I'm not sure how we want to proceed from here? Do we just sit tight until the GBR wide drone coordination, policy and plan is developed? And make sure Andy's passwords and logins are included in the Mavic Pro instructions as per the Matrice?

Let me know thoughts.

Cheers,
K-A



Kerry-Anne Hurren
A/Ranger in Charge (Natural Resource Management)
Great Barrier Reef & Marine Parks I QPWS and Partnerships
Department of Environment & Science

M (6) Personal info E Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

I acknowledge the Traditional Owners on whose land and sea country I work and live. I pay my respects to all elders past, present and future.

From: BRADSHAW Steven <Steven.Bradshaw@des.qld.gov.au>
Sent: Thursday, 4 July 2019 8:11 AM
To: HURREN Kerry-Anne; COOK Tayce; TEALEBROWNE Callum; DUNSTAN Andrew; CENTURINO Patrick; RALPH Tom; WINN Nathan
Cc: HESS Lee
Subject: FW: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]

Hi all,

Please see below advice regarding the replacement for the can I fly there? app.

Regards

Steve

From: GLOSKO Brett
Sent: Wednesday, 3 July 2019 5:59 PM
To: ORCHARD Richard; BROOK Scott; BRADSHAW Steven; CARTER Greg
Cc: Drones Working Group DES
Subject: FW: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]

Hey Guys,

As an F.Y.I. if you haven't seen the below.

The app is called OpenSky, and also has approach and departure paths, and a button to select, recreational, excluded, and ReOC users, which is useful.

Does QPWS and/or Wildlife have any RPA e-mail distribution groups?



19-211

Brett Glosko
Compliance Delivery Manager & Chief Remote Pilot
Remotely Piloted Aircraft Systems
Department of Environment and Science

P 07 5626 6840
ARN 1057139
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

File F

Page 351 of 462

From: CASA mailing lists <mailing.service@casa.gov.au>
Sent: Wednesday, 3 July 2019 11:51 AM
To: GLOSKO Brett
Subject: CASA-approved drone safety app now available [SEC=UNCLASSIFIED]

CASA-approved drone safety app now available

The first CASA-approved drone safety app connected to our new RPAS digital platform is now available for all recreational and commercial drone operators to download and use.

The digital platform is an exciting technological development for CASA and is the foundation of a fresh approach to safety for unmanned operations.

Over the coming weeks, we will retire the Can I fly there? app. We recommend that you delete the 'Can I fly there?' app now and visit www.casa.gov.au/droneapp to select an alternative drone safety app.

The development of our platform aligns with the broader whole-of-government approach to 'open data' in order to improve services to the community. It is also another first step in helping us to integrate drones into Australian airspace safely and efficiently.

In the future, we're excited that the new platform will also:

- integrate with our proposed drone registration system
- allow licenced operators to submit flight authorisation requests
- automate approvals to operate within 3 NM of a controlled aerodrome, where safe to do so
- provide the building blocks for a future RPA traffic management system.

For more information, go to www.casa.gov.au/droneapp. Future CASA-approved apps will allow developers to innovate and keep pace with technological change.

--

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Date : 21/10/2019 11:06:16 AM
From : "HEAD Damien"
To : "DUNSTAN Andrew"
Cc : "ALDERSON Tina"
Subject : RE: DES drones working group

I would think it is a good thing. I did think you already were.

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Monday, 21 October 2019 11:05 AM
To: HEAD Damien
Cc: ALDERSON Tina
Subject: RE: DES drones working group

Agree, but more questioning my involvement or not in this working group as I am not involved at present?

From: HEAD Damien <Damien.Head@des.qld.gov.au>
Sent: Monday, 21 October 2019 11:04 AM
To: DUNSTAN Andrew
Cc: ALDERSON Tina
Subject: RE: DES drones working group

I think the presentation will be fairly generic but possibly still worth asking some questions around data storage. The back end stuff. Do see the flying of drones a big issue.

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Monday, 21 October 2019 9:32 AM
To: HEAD Damien
Cc: ALDERSON Tina
Subject: DES drones working group

Hi Damien/Tina

Wondering if I should be in this DES drones working group? Certainly the guys at DNRME analysing and managing drone data consider the Raine work as the most progressed of the DES work which is now starting to inundate them and would like a co-ordinated approach to their involvement. Just wanted to have your input on the best way to approach this – just get in touch with Paul Lawrence, Executive Director of Science Delivery and Knowledge or a more formal approach? He is doing a presentation as below

But what is DES doing about drones? Paul Lawrence, Executive Director of Science Delivery and Knowledge, will provide an update on what is happening in the DES Drones Working Group and all drone-related activities across the department. The use of drones by DES puts into action a number of our *Digital Ambitions* including *Embracing Change*, *Seamless Business* and *Customer Focus* which will be showcased at the seminar.

The Drones Working Group is responsible for guiding the continued adoption of drones for DES, as Queensland strives to become a world leader in drone technology and application. Seminar details (please note the time change for this seminar series):

- **Friday, 1st November 2019**
- **11:00am-12:00pm**
- Wet Tropics and Gondwana Rainforest rooms, Level 3, 400 George Street, Brisbane.

I'll be at Raine then but might be good to provide input and link up prior

Cheers

Andy

Date : 30/07/2018 1:43:39 PM

From : "ALDERSON Tina"

To : "DUNSTAN Andrew"

Subject : RE: drone

Attachment : image002.png;

Ta and sorry – didn't look at the phone !

It weighs 27.4kg !

From: DUNSTAN Andrew

Sent: Monday, 30 July 2018 1:43 PM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Subject: RE: drone

Texted, but to me at QPWS level 5 400 George St will be best I reckon thanks

From: ALDERSON Tina

Sent: Monday, 30 July 2018 1:38 PM

To: DUNSTAN Andrew

Subject: RE: drone

Address to send ?

From: DUNSTAN Andrew

Sent: Monday, 30 July 2018 1:38 PM

To: HURREN Kerry-Anne <Kerry-Anne.Hurren@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; COOK Tayce <Tayce.Cook@des.qld.gov.au>; SOLOWIEJ Ben <Ben.Solowiej@des.qld.gov.au>

Subject: RE: drone

Noice

From: HURREN Kerry-Anne

Sent: Monday, 30 July 2018 1:33 PM

To: DUNSTAN Andrew; ALDERSON Tina; COOK Tayce; SOLOWIEJ Ben

Subject: RE: drone

A MAVIC Pro ☺

From: DUNSTAN Andrew

Sent: Monday, 30 July 2018 1:21 PM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; HURREN Kerry-Anne <Kerry-Anne.Hurren@des.qld.gov.au>; COOK Tayce <Tayce.Cook@des.qld.gov.au>; SOLOWIEJ Ben <Ben.Solowiej@des.qld.gov.au>

Subject: RE: drone

Perfect, that sounds like a plan. What little drone did they get?

From: ALDERSON Tina

Sent: Monday, 30 July 2018 12:41 PM

To: DUNSTAN Andrew; HURREN Kerry-Anne; COOK Tayce; SOLOWIEJ Ben

Subject: drone

Hi Andy

The guys here have bought a little drone as well – spoke to Lee and going to send the big drone down by Followmont to Bris today - let me know where to send it

If the sorting out the best settings for the drone can be sorted at Moreton with DNMRE guys that would be great and send it back up on Followmont

Tina



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

Queensland Parks & Wildlife Service

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

Date : 25/10/2019 3:14:54 PM
From : "GLOSKO Brett"
To : "DUNSTAN Andrew"
Subject : RE: Drone deploy
Attachment : image001.png;image002.png;
Hi Andrew,

Within ESR, we use the Phantom 4 RTK aircraft, which has proprietary mission planning software, and then a product called Propeller <https://www.propelleraero.com/> to undertake the photogrammetry, post data capture. Propeller uses the AWS cloud based storage in Sydney.

Give me a call at some stage, and I'll Skype you in to provide you a demo of the product.



Brett Glosko
Program Manager & Chief Remote Pilot
Remotely Piloted Aircraft Systems
Waste Operations / Waste and Recovery
Environmental Services and Regulation
Department of Environment and Science

P 07 5626 6840
ARN 1057139
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Friday, 25 October 2019 8:25 AM
To: GLOSKO Brett
Subject: Drone deploy

Hi Brett

We are currently working closely with DNRME for image analysis, production of orthomosaic and topographic images and data storage. This is leading towards Amazon cloud storage. Having talked with AIMS they are using Drone Deploy and am wondering if you have looked at this as a department wide option for their Enterprise package?

Cheers

Andy

Date : 6/03/2019 3:58:40 PM

From : "ALDERSON Tina"

To : "DUNSTAN Andrew"

Subject : RE: Drone Mapping - Whitsunday Craig Trail Boardwalk

Attachment : image005.png;image006.png;image007.jpg;image008.jpg;image009.jpg;

Thanks Andy



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

From: DUNSTAN Andrew

Sent: Wednesday, 6 March 2019 3:48 PM

To: ALDERSON Tina

Subject: RE: Drone Mapping - Whitsunday Craig Trail Boardwalk

Sounds a bit more reasonable. Best contact is the guy we work with, John Tasker at DNRME. John.Tasker@dnrme.qld.gov.au
Phone 07 33304311

From: ALDERSON Tina

Sent: Wednesday, 6 March 2019 3:44 PM

To: DUNSTAN Andrew

Subject: RE: Drone Mapping - Whitsunday Craig Trail Boardwalk

Pretty sure it's a 170m mangrove crossing – so boardwalk needed through there – they want to get high resolution of the whole area to plan where would be best to route it
And then just the bit for the stainless ladder I think

Who would be the contact at DNMRE ? the same people who we use ?

I think they have some dollars so could probably get a contractor to fly for them – would just need to specify the details they needed, flight paths etc I would imagine



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

From: DUNSTAN Andrew

Sent: Wednesday, 6 March 2019 3:34 PM

To: ALDERSON Tina

Subject: RE: Drone Mapping - Whitsunday Craig Trail Boardwalk

Mmmm sounds cool. Does he mean 170 different boardwalk crossings of mangroves throughout the 27km length ie map 170 different places with drone as well as the rock face?

Anyway I think he could get DNRM to manage, process and map the rockface/ladder and mangrove boardwalk sections in highest res for him as it is part of the overall QLD Spatial dataset and services I think??

As for drone flying to create images for the task this will be a different scenario. I could do it as could other operators but it may be due to the time commitment that it needs to be outsourced to a commercial drone operator. No ideas here I'm afraid.

Hope that helps a bit

Cheers

Andy

From: ALDERSON Tina

Sent: Wednesday, 6 March 2019 2:21 PM

19-211

File F

Page 356 of 462

To: DUNSTAN Andrew
Subject: FW: Drone Mapping - Whitsunday Craig Trail Boardwalk

Hi Andy
Any suggestions for me to pass to Alex or any ideas of who he could talk to ?
Tina



Tina Alderson
Project Manager
Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region
QPWS & Partnerships
Department of Environment and Science

P (6) Personal info
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

From: HOFFMANN Alex
Sent: Tuesday, 5 March 2019 3:14 PM
To: ALDERSON Tina
Subject: FW: Drone Mapping - Whitsunday Craig Trail Boardwalk

Hi Tina,

As discussed..

I am seeking drone services to assist with mapping, design and development approvals for the construction of the 170 boardwalk crossing through mangroves and a 21m stainless steel ladder on the Whitsunday Craig Trail, a 29km multi day hike on Whitsunday Island. See the kml file of the trail and the alignment report attached.

The boardwalk mangrove crossing will be a vessel trip and a 1 hr hike and I intend to gain high resolution imagery to assist with the boardwalk alignment along with mapping along the tidal creek.



I've heard of the use of LIDAR imagery which seems to be suitable for the ladder mapping. I intend to map it the site to assist in construction tendering. The ladder site is a rock face bellow the "Craig" on Whitsunday Island. To access the site will be a helicopter drop off for the day and a trek to the rock face to survey with a drone.



Any advice or contacts would be greatly appreciated.

Kind regards,



Alex Hoffmann - Senior Project Officer (Capital Works)
Whitsunday Island Investment Package
Whitsunday Marine Parks - Southern Great Barrier Reef
Department of Environment and Science
Cnr Mandalay Rd and Shute Harbour Rd Jubilee Pocket, AIRLIE BEACH QLD
4802
PO Box 5332, AIRLIE BEACH, Qld 4802
Ph: 07 4962 5208
M: [redacted] (6) Personal information
<http://www.npsr.qld.gov.au>

Date : 2/08/2019 11:03:45 AM
From : "Sean Fagan"
To : "DUNSTAN Andrew"
Cc : "Karen Arthur"
Subject : RE: Drone paper [SEC=OFFICIAL]
Attachment : image001.jpg;image002.jpg;image003.jpg;
Thanks Karen, and nice to meet you Andy.

As Karen mentioned, we are currently drafting a policy to guide the use of drones by staff and contractors of the Department. Does QLD Parks and Wildlife have a similar policy that you would be able to share? We want to make sure we have covered off on all bases, and the interactions of drones and wildlife is an important consideration for some of the work the Department undertakes.

Cheers,

Sean Fagan

Director Public Assurance and Advice

Supervising Scientist Branch

Heritage, Reef and Marine Division

Department of the Environment and Energy

GPO Box 461, Darwin NT 0801

T 08 8920 1102 | M (6) Personal info F 08 8920 1199 | sean.fagan@environment.gov.au

Supervising Scientist - Protecting the environment from the impacts of uranium mining



From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]
Sent: Thursday, 1 August 2019 10:34 AM
To: Karen Arthur <Karen.Arthur@environment.gov.au>
Cc: Sean Fagan <sean.fagan@environment.gov.au>
Subject: RE: Drone paper [SEC=OFFICIAL]

Thanks Karen and good to meet you Sean. Happy to help with anything.

Cheers

Andy

From: Karen Arthur <Karen.Arthur@environment.gov.au>
Sent: Thursday, 1 August 2019 9:56 AM
To: DUNSTAN Andrew
Cc: Sean Fagan
Subject: RE: Drone paper [SEC=OFFICIAL]

Thanks Andy,

Sean Fagan (Parks Australia) is developing guidelines for drone use for our department and is keen for information about impacts of drones on wildlife. Given the great data you guys have generated up at Raine, I just wanted to put you guys in contact.

Cheers,
Karen

From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]
Sent: Thursday, 1 August 2019 9:35 AM
To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; Karen Arthur <Karen.Arthur@environment.gov.au>; ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>
Subject: RE: Drone paper [SEC=OFFICIAL]

Hi Karen

Still not much further along with this as it is sitting with me and Graham Hemson at the moment. Other papers and electronics seem to have taken priority... but, will be onto it soon never fear! I'll keep you in the loop and send you draft updates if you like?

Cheers

Andy

From: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Sent: Wednesday, 31 July 2019 2:58 PM
To: Karen Arthur; ROBERTSON Katharine; DUNSTAN Andrew
Subject: RE: Drone paper [SEC=OFFICIAL]

Andy
Can you give Karen an update please
Ta
Tina

From: Karen Arthur <Karen.Arthur@environment.gov.au>
Sent: Wednesday, 31 July 2019 10:36 AM
To: ROBERTSON Katharine; ALDERSON Tina
Subject: Drone paper [SEC=OFFICIAL]

Hi Katharine and Tina,

Do you guys know the status of the Raine Island paper that was looking at the effects of drones on seabirds? If it has been published could you please send me a copy?

Thanks,

Karen

Dr. Karen Arthur
Migratory Species Section | Biodiversity Conservation Division
Department of the Environment and Energy

GPO Box 787 CANBERRA, ACT 2601
T: 02 6274 2318
karen.arthur@environment.gov.au

[please note I work part-time Mon-Thur]

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Date : 12/11/2019 11:43:51 AM

From : "DUNSTAN Andrew"

To : "DSOUZA Marshall"

Subject : RE: Ground Control Point Coordinates (Raine Island November 2019)

Attachment : image001.png;

Thanks Marshall, I think that's all I need to get this done. Might try tonight.

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>

Sent: Tuesday, 12 November 2019 11:31 AM

To: DUNSTAN Andrew

Subject: Ground Control Point Coordinates (Raine Island November 2019)

Hi Andy,

Attached are the coordinates for the GCPs observed on the 5th and 6th of November, Easting and Northing is in GDA94 MGA55, elevation is referenced to LAT not AHD. I've also attached coordinates of the installed pavers as well (these are included in each the total GCP coordinates).

For each file containing all GCPs. Point IDs in the 5xx range correspond to the GCPs located above the cliff (Pavers). All other points correspond to the number printed on the targets located in the swale and berm areas (Temporary tarps) where the B or C suffix only apply for targets reset on the berm that would have been moved by turtles or in the swale that were resurveyed the next morning that were clearly moved.

The Mavic was flown on the 6th so use the 20191106 file if you are uploading it to drone deploy.

Cheers,



Marshall D'Souza

Spatial Information Officer

Geodesy and Positioning | Land and Spatial Information

Department of Natural Resources, Mines and Energy

P: 3330 4346

E: marshall.dsouza@dnrme.qld.gov.au

A: 275 George St, Brisbane QLD 4000

Date : 23/10/2019 4:38:22 PM

From : "GLOSKO Brett"

To : "COOK Tayce"

Cc : "HESS Lee" , "HURREN Kerry-Anne" , "TEALEBROWNE Callum" , "BRADSHAW Steven" , "DUNSTAN Andrew"

Subject : RE: Mavic Pro Drone Incident_Cairns Marine Parks

Attachment : image001.png;image003.png;image004.png;

Hi Tayce,

Thank you for contacting me and reporting the loss of your RPA. It's certainly unfortunate, however you are certainly not the first, and I suspect won't be the last. As suggested, I was talking with the DAF Chief Pilot only a week or so ago, and one of their first Boating and Fisheries Patrol Mavic's did exactly the same thing on its first flight. It happens. That said, it's a good trigger to check and update your procedures (if required).

- Battery warning levels should be set at appropriate levels to ensure the ability to return the aircraft safely, even if weather conditions change, i.e. increase of returning aircraft head-wind.
- Aircraft should be returned to designated landing area with sufficient battery remaining to avoid automated critical battery level return to home functionality triggering. Eating into the last 10% of the battery will degrade battery life. It self-landed to avoid battery damage. Keep in mind that the battery works on a chemical reaction. It is least stable at either end of the spectrum (i.e. full or empty), and most stable in its storage state (between 40 – 60% full), hence why the batteries will self-discharge if left full and not used.
- Pilots should be familiar with the aircraft controls to toggle a cancellation of the automated return to home function (if required). I made some enquires with an external operator that I know really tests the limits, and he advised that the Mavic definitely has the ability to override the critical battery landing function to enable it to fly back.
- Return to home setting should be set to "return to controller" if operating over water, and if this function is available for the aircraft in use. If this function is unavailable, then refer to the above recommendation to take control and manually fly to a safe landing.
- You may wish to check your setting for loss of control signal. If sufficient battery is available, then hover is suitable, and you can move the vessel closer to regain signal and regain control of the aircraft. If return to controller is available in the return to home settings, then return to home would be a suitable setting for loss of control signal.

In relation to incident reporting, as discussed, I wasn't immediately familiar with the requirement to report to the ATSB for operations in the sub-2kg excluded category of operations. I had a look at the ATSB website, which didn't really assist me much further. I contacted a colleague within PolAir RPAS team who advised the following: "I can't find anything specifically requiring a commercial, sub 2kg operator to report an incident, however, I did find a crash report dating back to last year of a sub 2kg operator who crashed a Phantom 4 drone while conducting a mine pit survey. Therefore, if so inclined, the pilot could submit a 'routinely reportable' report to the ATSB via their website within 72 hours of the crash. They do not actively investigate the incident, however, they do use it for data collection purposes."

Given it doesn't immediately appear to be an aircraft failure or risk to safety, I don't think it "needs" to be reported beyond the normal DES incident reporting procedures. If I receive any information to the contrary, I'll let you know.

Do you know if this aircraft was listed on the QGIF inventory? If so, it should be covered by the QG insurance fund.



Brett Glosko
Program Manager & Chief Remote Pilot
Remotely Piloted Aircraft Systems
Waste Operations / Waste and Recovery
Environmental Services and Regulation
Department of Environment and Science

P 07 5626 6840
ARN 1057139
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

From: COOK Tayce <Tayce.Cook@des.qld.gov.au>

Sent: Wednesday, 23 October 2019 10:27 AM

To: GLOSKO Brett

Cc: HESS Lee; HURREN Kerry-Anne; TEALEBROWNE Callum; BRADSHAW Steven; DUNSTAN Andrew

Subject: Mavic Pro Drone Incident_Cairns Marine Parks

Hey Brett,

As we spoke on the phone earlier. I was operating our Mavic Pro (less than 2kg) drone from our vessel Reef Ranger on Saturday 19th October. I was running a flight to film some of our smaller tender operations at the time of the incident. I completed our usual pre-start check where it initially had some launch issues but after restarting and running some checks appeared to be back to normal function.

The conditions on the day were roughly 5-10knots and clear skies.

I was operating the drone when I went to return it to the vessel when the screen froze and the DJI app crashed. The filming screen reduced in size and inverted on a frozen screen and I was unable to rectify the app. During this time it disconnected and reconnected to the drone. By the time I had tried to fix the app I was unable to return the drone to the vessel (which was not at anchor at the time and had been transiting along the reef edge to support the drone operations) and it landed in the water on the reef flat.

We were able to recover the drone from the reef but it is no longer in working condition.

Can you please advise me on what reporting I may/may not need to do to cover this incident.

For future operations I will put forward to our operators that whilst operating from moving boats we need to increase our battery warning to above 30% to allow more time to return to the boat so this incident does not occur again.

Thank you for your assistance and I will wait your advice on how to proceed from here.

Thank you so much for you time, I really appreciate your help.

Have a great day,



Tayce Cook

Ranger

Great Barrier Reef and Marine Parks Region (Northern)

QPWS and Partnerships

Department of Environment and Science

PH: 6) Personal info Office only
100 – 106 Tingira St, Portsmith 4870
PO BOX 685, Bungalow QLD 4870

Date : 27/08/2018 11:21:06 AM

From : "BULL Peter"

To : "DUNSTAN Andrew"

Subject : RE: Moreton Island drone setup and trials

Attachment : image001.png;image002.png;image006.png;image007.png;image008.png;

Roger that – see you on Friday.

Regards,



Peter Bull
Ranger
Queensland Parks and Wildlife Services
Moreton Island National Park
Department of Environment and Science

P 07 3408 2710
Ben Ewa Ranger Station, Moreton Island, QLD 4025
QPWS via Tangalooma Resort, Tangalooma, QLD 4025

From: DUNSTAN Andrew

Sent: Monday, 27 August 2018 11:20 AM

To: BULL Peter <Peter.Bull@des.qld.gov.au>

Subject: RE: Moreton Island drone setup and trials

Sounds great Peter, am sure you'll be much better at it than me! Will be ideal to have your knowledge of the country and to explore the options, as well as identify any locations you might like mapped/imaged to fine scale by the DNRME guys. Looks like we'll be on the same barge so will hopefully meet up on there. I'll wear my 'possum catcher' shirt!

See you then

Cheers

Andy

From: BULL Peter

Sent: Monday, 27 August 2018 11:12 AM

To: DUNSTAN Andrew

Subject: FW: Moreton Island drone setup and trials

Andrew,

4(6) Personal information will be returning to Moreton on Friday (29th) on the MICAT – we should be up at the Cape around 11.

I'm happy to help – I spend a fair amount of my time here "walking the country" with a gun in my hands chasing pigs, so I know the island fairly well.

I've also been building/flying multi-rotors for about 8 years (back before they were a "thing" – and we didn't call the drones ☺).

My contact numbers are 4(6) Personal information and the home line at the Cape is 3408 1232.

See you soon.

Regards,



Peter Bull
Ranger
Queensland Parks and Wildlife Services
Moreton Island National Park
Department of Environment and Science

P 07 3408 2710
Ben Ewa Ranger Station, Moreton Island, QLD 4025
QPWS via Tangalooma Resort, Tangalooma, QLD 4025

From: NEUMANN Rusty

Sent: Monday, 27 August 2018 10:25 AM

To: BULL Peter <Peter.Bull@des.qld.gov.au>

Subject: FW: Moreton Island drone setup and trials

G'day Pete,
The email trail for the drone project
Rusty



Rusty Neumann
Ranger Moreton Island NP
Queensland Parks and Wildlife Services
Moreton Island National Park
Department of Environment and Science

P 07 3408 2710 M (6) Personal info

Ben Ewa Ranger Station, Moreton Island, QLD 4025
QPWS via Tangalooma Resort, Tangalooma, QLD 4025
Rusty.Neumann@des.qld.gov.au

From: KIMLIN Shayne
Sent: Wednesday, 8 August 2018 2:22 PM
To: CHRISTENSEN Terry <Terry.Christensen@des.qld.gov.au>; NEUMANN Rusty <Rusty.Neumann@des.qld.gov.au>
Subject: FW: Moreton Island drone setup and trials

Geday Terry / Rusty,

As per the email below,

Would be good if we can support Dr Andy Dunstan with the drone project.
Whats proposed is an idea based on info from other people. I believe the "spare house" at the cape refers to the info centre flat.

If I can talk to you tomorrow morning regards this would be great.

Their proposed dates are 16 & 17 Aug which the end of next week, and have yet to organise the vehicle barge.

Regards



Shayne Kimlin
A/Senior Ranger
Moreton & Heritage Parks
Moreton Bay | Coastal and Islands Region
Queensland Parks and Wildlife Service
[Department of Environment and Science](http://www.des.qld.gov.au)
P (07) 3101 2052 | M
34 Trafalgar Street Manly QLD 4179
PO Box 5178 Manly QLD 4179

From: MATTHEWS Galen
Sent: Wednesday, 8 August 2018 10:44
To: KIMLIN Shayne
Subject: FW: Moreton Island drone setup and trials

Hi Shayne,

As discussed, a good opportunity to get some footage around Moreton.

Can you follow up please and liaise with Andrew.

Cheers



Galen Matthews
A/Manager
Moreton Bay | Coastal and Islands Region
Queensland Parks and Wildlife Service
[Department of Environment and Science](http://www.des.qld.gov.au)
P (07) 3101 2053 | M (6) Personal info
34 Trafalgar Street Manly QLD 4179
PO Box 5178 Manly QLD 4179

From: DUNSTAN Andrew
Sent: Monday, 6 August 2018 12:24 PM
To: MATTHEWS Galen <Galen.Matthews@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Subject: Moreton Island drone setup and trials

Hi Galen

Just following up from our chat this morning about drones and Moreton Island. We have a new QPWS drone, Matrice 200 series with 17mm and 45mm lens, for use at Raine Island for high resolution topographic mapping and seabird and turtle counts primarily. We have done considerable drone work at Raine over the last 2 years and used this new drone on the last Raine trip in July with excellent results. We're working with the DNRME survey and spatial media team for image management and to produce digital elevation models and orthomosaic images for automated seabird and turtle counts.

The DNRME team is keen to support us in optimising the image gathering by joining myself for two days field work to determine standard camera and drone mapping settings suitable for Raine flights. We do have standard operating procedures in place around flight protocols and nesting seabird disturbance which essentially call for minimum altitude of 60m and vertical take-off and landing away from any areas likely to impact fauna. We also follow CASA guidelines applicable to flying over the QPWS estate. Flights would be over a suitable area of about 400 x 200m incorporating beach, low vegetation and ocean.

We'd like to be able to come over to conduct this field work at Moreton on Thurs – Fri Aug 16-17 if possible. It would be great to have the involvement of your ranger(s) if possible for their local knowledge and to provide any support and also to share our drone knowledge if there is value in this. We will have our own transport but also wondering if there is the possibility to stay at the lighthouse station (spare house?) overnight on Thursday Aug 16th for approximately 6 people? We would of course look after all our own needs.

I hope this all sounds feasible and am very happy to talk about adapting the plan to make it work best.

Cheers

Andy Dunstan

Dr Andy Dunstan

Senior Conservation Officer

Raine Island Recovery Project I Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P4p4(6) Personal informa

Level 5, 400 George St, Brisbane, QLD 4000

www.npsr.qld.gov.au/raineisland <<http://www.npsr.qld.gov.au/raineisland>>

Date : 8/03/2019 1:21:10 PM
From : "DUNSTAN Andrew"
To : "LIMPUS Col"
Subject : RE: Notice of approaching expiry of AEC Approval
Attachment : Raine Island Recovery Project 2017-18 Technical Report
DRAFT.pdf;image001.png;image002.png;image004.jpg;image005.png;image008.png;image010.png;
Here you go Col, should suffice

From: LIMPUS Col
Sent: Friday, 8 March 2019 11:55 AM
To: DUNSTAN Andrew
Subject: RE: Notice of approaching expiry of AEC Approval

Do you have some emailable representative pdf copy of reports that I can send to the AEC?


Queensland Government
Dr Col LIMPUS, PSM
Chief Scientist
Aquatic Threatened Species Program
Wildlife and Threatened Species Operations / QPWS & Partnerships
Department of Environment and Science
Ph:) Personal in: col.limpus.des.qld.gov.au
Adjunct Associate Professor,
School of Veterinary Science, University of Queensland.
Adjunct Associate Professor,
School of Earth & Environmental Sciences, James Cook University.
Scientific Councillor, Marine Turtles
UNEP Convention for Conservation of Migratory Species (CMS)



From: DUNSTAN Andrew
Sent: Thursday, 7 March 2019 8:26 AM
To: LIMPUS Col
Subject: RE: Notice of approaching expiry of AEC Approval

Hi Col

Here's the UAV project completion report. Onto the application now

Cheers

Andy

From: LIMPUS Col
Sent: Wednesday, 6 March 2019 4:57 PM
To: DUNSTAN Andrew
Subject: RE: Notice of approaching expiry of AEC Approval

thanks


Queensland Government
Dr Col LIMPUS, PSM
Chief Scientist
Aquatic Threatened Species Program
Wildlife and Threatened Species Operations / QPWS & Partnerships
Department of Environment and Science
Ph:) Personal in: col.limpus.des.qld.gov.au
Adjunct Associate Professor,
School of Veterinary Science, University of Queensland.
Adjunct Associate Professor,
School of Earth & Environmental Sciences, James Cook University.
Scientific Councillor, Marine Turtles
UNEP Convention for Conservation of Migratory Species (CMS)



From: DUNSTAN Andrew
Sent: Wednesday, 6 March 2019 3:52 PM
To: LIMPUS Col
Subject: RE: Notice of approaching expiry of AEC Approval

Thanks Col, Ill get onto the UAV report and application now.

Here are the details for your turtle ethics report for 2018 year at Raine/Moulter

Turtles interacted with for tagging – 1115 not including the 21 satellite tagged turtles which I think are in a different ethics permit/report

Turtles interacted with for 500 counts – 1020

Hatchlings interacted with for hatchling counts – 26,103

Hopefully that's all you need but let me know if there's more.

Cheers

Andy

From: LIMPUS Col
Sent: Wednesday, 6 March 2019 1:01 PM
To: DUNSTAN Andrew
Subject: FW: Notice of approaching expiry of AEC Approval

Attached are forms for

- Reporting from the 2018 calendar year
- Renewal of drone project


Dr Col LIMPUS, PSM
Chief Scientist
Aquatic Threatened Species Program
Wildlife and Threatened Species Operations / QPWS & Partnerships
Department of Environment and Science
Ph: Personal int: col.limpus.des.qld.gov.au
Adjunct Associate Professor,
School of Veterinary Science, University of Queensland.
Adjunct Associate Professor,
School of Earth & Environmental Sciences, James Cook University.
Scientific Councillor, Marine Turtles
UNEP Convention for Conservation of Migratory Species (CMS)



From: STEPHAN Lauren
Sent: Monday, 3 September 2018 2:20 PM
To: LIMPUS Col
Subject: Notice of approaching expiry of AEC Approval

Dear Col

Our records show that AEC approval for the following project will expire on the nominated date:

SA2015/12/533	Limpus, Colin	Assessment of seabird and turtle nesting islands by unmanned aerial vehicle (UAV) photogrammetry.	30-Dec-15	30-Nov-18	col.limpus@ehp.qld.gov.au
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It is important to be aware that any further work for this project beyond the expiry date may constitute a breach of the **Animal Care and Protection Act 2001**. Also, you are required to lodge a Project Completion Advice shortly after expiry of the current approval or soon after finishing the project if it is completed before the approval expiry date. For your convenience, I have attached the appropriate Project Completion Advice form.

I have also attached a new Application Form in case you wish to renew your approval.

Please contact the Chair of the approving AEC if you have any questions.

Kindest regards


Lauren Stephan
Project Officer, Animal Ethics
Department of Agriculture and Fisheries
P 07 3708 8518 E lauren.stephan@daf.qld.gov.au
Ecosciences Precinct, 41 Boggo Road, Dutton Park Qld 4102

Date : 8/11/2019 11:03:27 AM

From : "HURREN Kerry-Anne"

To : "DUNSTAN Andrew" , "COOK Tayce" , "BRADSHAW Steven" , "TEALEBROWNE Callum" , "RALPH Tom"

Subject : RE: Purchase of new drone

Thanks for researching replacement options Tayce. Apologies for not being actively involved in these conversations as today is the first day I've had at my desk in the last 3 weeks as you know.

I agree with Andy. The Mavic makes most sense.

I get where Steve is coming from with his previous suggestion being the phantom as they are easy to fly and catch (and we did our training with these). Moreton Bay use Phantoms and seem to like them. However, I think we were just getting used to the Mavic and I like that it is super compact and easy to transport. This is why Benny and I chose it in the first place. Also, makes sense as we already have excess accessories. Townsville also have a Mavic so I guess it makes it that bit extra interchangeable between pilots.

Maybe if we were ever lucky enough to get another drone, we get a Phantom as a smaller option to be kept on Reef Ranger??? Just a thought..... I don't know, like I said, I have been out of the conversations lately.

Thank you,
K-A

From: DUNSTAN Andrew

Sent: Friday, 8 November 2019 9:26 AM

To: COOK Tayce; BRADSHAW Steven; TEALEBROWNE Callum; HURREN Kerry-Anne

Subject: RE: Purchase of new drone

I vote the mavic as we have existing accessories and I'm very happy with the new Raine mavic used extensively this trip

Cheers

Andy

From: COOK Tayce <Tayce.Cook@des.qld.gov.au>

Sent: Thursday, 7 November 2019 1:31 PM

To: BRADSHAW Steven; TEALEBROWNE Callum; HURREN Kerry-Anne

Cc: DUNSTAN Andrew

Subject: RE: Purchase of new drone

Hey Guys

Below are three options I'm proposing that could suits our needs, unfortunately we can't sit down to discuss all together but if Steve, K-A and Callum get the chance while I'm away we can go ahead and purchase one:

In no particular order:

1. <https://www.jbhifi.com.au/products/dji-mavic-2-pro-4k-drone>
Advantages: we have all the accessories/batteries ect so just replacing like for like. Also all pilot are familiar with the operating system of DJI (which is well supported in software development ect)
Disadvantages: not super easy to catch on the boats (be still very achievable)
2. <https://www.jbhifi.com.au/products/dji-phantom-4-advanced-drone-ex-display>
Advantages: each to launch and retrieve. Good DJI software
Disadvantages: does not pack down very small and harder to transport around islands ect
3. <https://www.swellpro.com/waterproof-splash-drone.html>
Advantages: waterproof, possibly a bit ranger proof?
Disadvantages: not DJI run software – pilots would need to look at using a different software system. I am also unaware as to the quality of these drones as not many people have them at this stage.

Have a look and see what you think, it would be good to get one so we can get in the air again and maintain our skills and continue on improving out flight capabilities.

Cheers

Tayce

From: BRADSHAW Steven

Sent: Thursday, 31 October 2019 2:09 PM

To: COOK Tayce

Cc: HURREN Kerry-Anne; TEALEBROWNE Callum; ALDERSON Tina; DUNSTAN Andrew

Subject: Re: Purchase of new drone

Hi Tayce, 19-211

File F

Page 369 of 462

I was thinking a phantom of some description but it is not as portable.

Otherwise one of the mavics would do the job. Not 100% familiar with the current lineup.

We are still really in our infancy with drones and Andy just bought the mavic with the thermal camera as well.

Sent from my iPhone

Steven Bradshaw
Ranger in Charge (Vessels)
Queensland Parks and Wildlife Service | Great Barrier Reef and Marine Parks Region
Department of Environment and Science

P 07 4047 9616

Mp4(6) Personal inform

100-106 Tingira Street, Portsmith QLD 4870

PO Box 685 Bungalow QLD 4870

E: steven.bradshaw@qld.gov.au

W: www.des.qld.gov.au

On 31 Oct 2019, at 11:22, COOK Tayce <Tayce.Cook@des.qld.gov.au> wrote:

Hey Far North Drone Users,

I would like to open the floor for discussion regarding the purchase of a new drone to replace the one that was lost in the last drone incident.

I would like to know what drone you think would fit our team and the current and/or future use we might have for drones in our region.

If possible I would like to purchase/order a new drone (next week if possible) so we can takes to the skies and continue to develop skills and continue logging hours for all pilots. We have approval from both Tina and Lee to proceed with this replacement purchase.

Thank you for your consideration and your suggestions would be greatly appreciated.

Cheers,

<image002.png>Tayce Cook

Ranger

Great Barrier Reef and Marine Parks Region (Northern)

QPWS and Partnerships

Department of Environment and Science

PH (6) Personal info - Office only

100 - 106 Tingira St, Portsmith 4870

PO BOX 685, Bungalow QLD 4870

Date : 10/10/2019 2:08:42 PM

From : "ALDERSON Tina"

To : "MUNRO Bec (GBR and Marine Parks, DES)"

Cc : "DUNSTAN Andrew"

Subject : RE: Purchase Requisition - UAV Wholesale_Drone

Attachment : GBRR192017_UAV Wholesale_Mavic Drone.pdf;image001.png;image005.png;image006.jpg;image007.jpg;

I had to convert to a word doc to add a snip of my signature – and then back to a pdf – hope that's ok for you – let me know if not and I can forward it to my home email address, print out, sign, scan and email back

From: MUNRO Bec (GBR and Marine Parks, DES) <Bec.Munro@des.qld.gov.au>

Sent: Tuesday, 8 October 2019 2:35 PM

To: ALDERSON Tina

Cc: DUNSTAN Andrew

Subject: Purchase Requisition - UAV Wholesale_Drone

Hi Tina

Can you please approve/sign the attached Purchase Requisition for the purchase of the Mavic Drone from UAV Wholesale?

Thanks

Bec

Bec Munro

Administration Officer

Great Barrier Reef & Marine Parks Region | QPWS & Partnerships

Department of Environment and Science

P 07 4722 5325 | VoIP 20325

Level 10 | 445 Flinders St Townsville 4810

PO Box 5597 Townsville 4810

E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au



*Agency DES	*Company code 2401	Requisition reference number GBRR192017	Plant 2401	Storage location Please Specify	Purchasing Group Please Specify
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Award contract reporting Selective offer process	Offer type Quotations	Quote/IT O/SOA reference number* Not applicable
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Section 1: Vendor information

*Vendor name UAV Wholesale		
*Vendor number 6158933	*Telephone number 03 5143 3451	*ABN/VACN 9 0 1 6 6 0 5 9 9 5 4
*Email address info@uavwholesale.com.au		*Contact name Sales
*Address 4 Jess Court, Wurruck, VIC		*Postcode 3 8 5 0

Section 2: Requisition officer

*Name Andy Dunstan	
*Business unit QPWS&P, GBRMPR	*Telephone number sch4p4(6) Personal information
*Email address andrew.dunstan@des.qld.gov.au	
*Additional contact person's email address	

Section 3: Instructions

*Purchase order (supplier's copy) Send to vendor/supplier	*Purchase order (receiver's copy) Send to both requisition and procureme	111 Multiple invoices expected (This creates a service order PO)	Payment terms (if required) Immediate payment
Discount incentive	*Delivery date 30/11/2019	*Delivery address 100-106 Tingira Street, Cairns, QLD	*Postcode 4 8 1 0

Additional instructions

As per Order # 120013745

Please complete **Section 6: Order details** on page 2.

Section 4: Automated totals (automatically populated from Section 6)

Total value (excluding GST)	Total GST	Total amount (including GST)
\$4,364.00	\$436.40	\$4,800.40

Section 5: Certifications

Procurement officer: I certify this requisition and endorse that it complies with the requirements of the Queensland Procurement Policy, and the agency's procurement policy and associated procedures..

Name L13 ecMuro	Procurement authorisation level 2
Telephone number 07 4722 5325	Signature sch4p4(6) Personal information
	Date 08/10/2019

Financial approval: I certify that the GL account codes, cost collector codes, tax codes and all other information are correct. I approve this expenditure in accordance with my delegated Financial Authority..

*Name Tina Alderson	*Position Project Manager
DAL/level (if applicable)	*Signature sch4p4(6) Personal information
	Date 08/10/2019

Email completed form and supporting documentation to: operationalprocurement@hpw.qld.gov.au

Privacy statement: The information being collected in this form is for the purpose of managing the financial accountability relevant to Queensland Government and is authorised under the Financial Accountability Act 2009. Your personal information may be disclosed within the Queensland Government, contracted service providers or financial institutions only as is necessary for the performance of the financial functions performed by these bodies. Your personal details will not be disclosed to any other third party or used for any other purpose without your consent, unless authorised or required to do so by law.

Section 6: Order details													
Line	*Item description	*Quantity	Unit of issue	*Unit rate (excluding GST)	*Tax code	*GST %	Value (excluding GST)	GST amount	Price (including GST)	Account assign	*GL account/asset code	*Cost collector	Cost type
1	Mavic 2 Enterprise Dual	1.00	EA	\$3,765.00	PG	10%	\$3,765.00	\$376.50	\$4,141.50	Asset	AST0050604	80069022	Int. order no.
2	DJI Mavic Enterprise Fly More Kit	1.00	EA	\$599.00	PG	10%	\$599.00	\$59.90	\$658.90	Asset	AST0500604	80069022	Int. order no.
Packing/handling charges								\$0.00	\$0.00				
Total							\$4,364.00	\$436.40	\$4,800.40				

Please complete **Section 5: Certifications** on page 1.

Date : 15/11/2019 9:59:23 AM

From : "DUNSTAN Andrew"

To : "MUNRO Bec (GBR and Marine Parks, DES)"

Subject : RE: Purchase Requisition - UAV Wholesale_Drone

Attachment : image001.png;image005.jpg;image002.png;image003.jpg;image008.png;

Yep, used it lots last trip so very happy

Cheers

Andy

From: MUNRO Bec (GBR and Marine Parks, DES) <Bec.Munro@des.qld.gov.au>

Sent: Friday, 15 November 2019 9:17 AM

To: DUNSTAN Andrew

Subject: RE: Purchase Requisition - UAV Wholesale_Drone

Hi Andy

Sorry, there was obviously miscommunication here. Have you received the drone and happy for payment to be made?

Thanks

Bec

Bec Munro

Administration Officer

Great Barrier Reef & Marine Parks Region | QPWS & Partnerships

Department of Environment and Science

P 07 4722 5325 | VoIP 20325

Level 10 | 445 Flinders St Townsville 4810

PO Box 5597 Townsville 4810

E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Thursday, 14 November 2019 9:57 AM

To: MUNRO Bec (GBR and Marine Parks, DES); ALDERSON Tina

Subject: RE: Purchase Requisition - UAV Wholesale_Drone

Hi Bec, I received an email from UAV wholesale that this invoice hasn't been paid. Wondering if you can check this out please?

Cheers


Queensland
Government

From: MUNRO Bec (GBR and Marine Parks, DES) <Bec.Munro@des.qld.gov.au>

Sent: Tuesday, 8 October 2019 2:35 PM

To: ALDERSON Tina

Cc: DUNSTAN Andrew

Subject: Purchase Requisition - UAV Wholesale_Drone

Hi Tina

Can you please approve/sign the attached Purchase Requisition for the purchase of the Mavic Drone from UAV Wholesale?

Thanks

Bec



Bec Munro

Administration Officer

Great Barrier Reef & Marine Parks Region | QPWS & Partnerships

Department of Environment and Science

P 07 4722 5325 | VoIP 20325

Level 10 | 445 Flinders St Townsville 4810

PO Box 5597 Townsville 4810

E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

Date : 11/10/2019 10:53:08 AM

From : "MUNRO Bec (GBR and Marine Parks, DES)"

To : "qss@hpw.qld.gov.au"

Cc : "DUNSTAN Andrew"

Subject : RE: QSS Finance FI2652514: PR GBRR192017_UAV Wholesale (6158933)_ \$4,800.40

Attachment : image001.png;image003.jpg;image005.png;image006.jpg;

Hi Kimberley

The Asset # for this is 2401027192.

Thanks

Bec



Bec Munro

Administration Officer

Great Barrier Reef & Marine Parks Region | QPWS & Partnerships
Department of Environment and Science

P 07 4722 5325 | VoIP 20325

Level 10 | 445 Flinders St Townsville 4810

PO Box 5597 Townsville 4810

E-mail: QPWSgbrmciGBRMMPR.Corro@des.qld.gov.au



From: Queensland Shared Services <qss@hpw.qld.gov.au>

Sent: Friday, 11 October 2019 10:48 AM

To: MUNRO Bec (GBR and Marine Parks, DES)

Cc: DUNSTAN Andrew

Subject: QSS Finance FI2652514: PR GBRR192017_UAV Wholesale (6158933)_ \$4,800.40

Dear Rebecca & Andy,

Please refer attached Purchase requisition form received by QSS Operational Procurement to process

Can you please supply via reply email the SAP Asset Numbers beginning with "2401" as QSS Operational Procurement can not search in SAP against your "AST" reference numbers

Thanks Heaps

Kind Regards,

Kimberly Mawhinney

Assistance Finance Officer

Transactional Business Services

Operational Procurement

Queensland Shared Services

Department of Science, Information Technology and Innovation

P (07) 5514 9322 (TIPT Ext 49322)

510 Christine Avenue Robina QLD 4226

PO Box 4417 Robina Town Centre QLD 4230

Email: kimberly.mawhinney@dsiti.qld.gov.au

Web: www.qld.gov.au/dsiti

Record Details:

Number: FI2652514

Category: Paper Requisition

Subject: PR GBRR192017_UAV Wholesale (6158933)_\$4,800.40

Description: Form for Processing:

Department: Environment and Science (DES)

Company Code: 2401 - DES

Additional Information:

Please find attached Purchase Requisition # GBRR192017 for processing_UAV Wholesale (6158933)_\$4,800.40

Thanks

Bec Munro

Status: Non Compliant - Awaiting Customer

Created: 10-10-2019 14:58:05

Ref:MSG35039210

Published on DES Disclosure Log
RTI Act 2009

Date : 10/12/2018 2:03:35 PM

From : "DUTOIT Julie"

To : "HEMSON Graham", "DUNSTAN Andrew", "ALDERSON Tina", "MCDOUGALL Andrew (Rockhampton)", "ROBERTSON Katharine"

Subject : RE: Raine - seabirds and reducing our impacts - conversation starter !

Attachment : Raine_acoustic counts_updated October 2018.xlsx;image002.png;image003.png;image004.png;

Graham - 6 acoustic counts have been completed on Raine over the last year and a half – see attached.

Regards,
Julie Dutoit
4047 9604

From: HEMSON Graham

Sent: Monday, 10 December 2018 1:45 PM

To: DUNSTAN Andrew; ALDERSON Tina; MCDOUGALL Andrew (Rockhampton); DUTOIT Julie; ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

I have no issue with changing SD cards at night. Sounds very sensible.

Likewise RTTB counts; probably only need to be two or maybe three times a year and can also be done at night, although this might make spotting harder? Probably a bit more discussion needed here.

How much ground truthing are we actually getting? I'm happy to use drone derived data but it needs to be a drone circling recorder to get multiple perspective to ensure we don't over look. I'm not sure I've seen one decent set of ground truthed data yet but then again I haven't been paying attention since April. This is ultimately a question for the consultants that calculate the relationships between acoustic signals and ground truthed data so they need to be in.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Monday, 10 December 2018 1:37 PM

To: ALDERSON Tina; MCDOUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie; ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

All excellent points and worked well during the trip to adapt surveys. Am keen to discuss the ground-truthing and technology aspects and get to a pragmatic plan which I think is already providing quality data from the drone work for most species. Will have more info after Jan/Feb trip with major veg cover as a parameter to consider
Cheers

Andy

From: ALDERSON Tina

Sent: Monday, 10 December 2018 12:45 PM

To: MCDOUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie; ROBERTSON Katharine; DUNSTAN Andrew

Subject: Raine - seabirds and reducing our impacts - conversation starter !

Hi

We were lucky enough to have h4p4(6) Personal info who is the Team Leader – Marine Conservation Program in Dept of Primary Industries, Parks, Water and Env in Tassie come on the second trip to Raine this nesting season. Rachel is a highly experienced bird person who has done a lot of different seabird work in her role including a fair deal of time working on shy albatross on the remote Albatross Island as well as considerable time at Macquarie and Antarctica.

It was great to have some fresh bird eyes on what we do at Raine and why - so after a few conversations with her and others on the trip, I would like to open up a discussion about a few things re Raine and birds being the following:

- Undertaking the bird surveys (normal ones plus drone target surveys) and changing the SD cards appear to be the primary source of impacts on seabirds. Walking around to do these surveys and card changes, not matter how hard you try, causes some birds to leave nests and expose the eggs to the gulls that are following you around. 'On the trip Katharine and Rachel trialed changing the SD cards and batteries at night with red lights on their headspots. This worked really well – so we are suggesting this methodology is followed from now on. Additionally drone targets in the centre of the island should be installed or removed at night as well. Ie anything in centre of the island do at night
- We also made the decision on to stop the RTTB count when we were doing it on the same trip. Not sure if the gulls were just 'on target' (target being us) that day as we were doing the RTTB the same time as Katharine and Rachel were doing the SD cards but ethically we made a decision to stop due to this after the predation of two lots of eggs. We had been really really cautious as well – pretty much crawling up to any cliff edges where there was a RTTB nesting and a booby nearby on the cliff top. It was an extra RTTB count (not

required under the seabird monitoring)

- Ground truth-ing – question as to how much more ground truth-ing is required for both the acoustic counts and the drone surveys. It would seem that a lot of birds are being missed and it is causing nest failure when doing 10m acoustic counts. An estimate was for 5 counts there was 15-20 egg failures from seagull following and predation. Surely the drone photo is better quality and more accurate to do these counts from than people on the ground. And if people counts are needed could you do these at night under red light? Is anything being got out of 'calibration' if the ground counts are not accurate?

So that's all opening up the conversation for discussion please – not trying to step on toes here just think it would be good to discuss how we can do it better – always room for improvement in everything we do

Ta

Tina



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

Queensland Parks & Wildlife Service

Department of Environment and Science

P 6) Personal info

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

Date : 10/12/2018 3:10:39 PM

From : "HEMSON Graham"

To : "DUTOIT Julie" , "DUNSTAN Andrew" , "ALDERSON Tina" , "MCDUGALL Andrew (Rockhampton)" , "ROBERTSON Katharine"

Subject : RE: Raine - seabirds and reducing our impacts - conversation starter !

Attachment : image001.png;image008.png;image002.png;image005.png;image006.png;

Yep that's the main question but part of that is how many drone counts do we have to we can cross reference drone counts with ground counts to see how accurate our counts are. The project was always meant to be about testing drones and acoustics and comparing the estimates from all to understand each methods limitations and uses.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUTOIT Julie

Sent: Monday, 10 December 2018 3:02 PM

To: HEMSON Graham; DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

I'll have to defer to the Raine crew for when the acoustic counts corresponded with drone footage.

But drones aside, I think part of the question is how many times do we need to manually count around the acoustic monitors to be confident if we are getting a correlation with the acoustic records or not?

Regards,
Julie Dutoit
4047 9604

From: HEMSON Graham

Sent: Monday, 10 December 2018 2:14 PM

To: DUTOIT Julie; DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

Did any of these have corresponding drone vision?



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info
61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUTOIT Julie

Sent: Monday, 10 December 2018 2:04 PM

To: HEMSON Graham; DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

Graham - 6 acoustic counts have been completed on Raine over the last year and a half – see attached.

Regards,
Julie Dutoit
4047 9604

From: HEMSON Graham

Sent: Monday, 10 December 2018 1:45 PM

To: DUNSTAN Andrew; ALDERSON Tina; MCDUGALL Andrew (Rockhampton); DUTOIT Julie; ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

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Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info

61 Yeppoon Rd, Parkhurst, Qld 4702
PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Monday, 10 December 2018 1:37 PM

To: ALDERSON Tina; MCDUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie; ROBERTSON Katharine

Subject: RE: Raine - seabirds and reducing our impacts - conversation starter !

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Sent: Monday, 10 December 2018 12:45 PM

To: MCDUGALL Andrew (Rockhampton); HEMSON Graham; DUTOIT Julie; ROBERTSON Katharine; DUNSTAN Andrew

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Ta
Tina



Tina Alderson

Project Manager
Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region
Queensland Parks & Wildlife Service
Department of Environment and Science

P 4 (6) Personal info

100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

Date : 16/07/2018 10:36:31 AM

From : "Mark Read"

To : "DUNSTAN Andrew" , "ALDERSON Tina" , "ROBERTSON Katharine"

Subject : RE: Raine - video automated processing of underwater gopro [SEC=UNCLASSIFIED]

Attachment : image001.jpg;

That's pretty cool.

You can see that a few turtles don't get picked up/counted but the vast majority do.

If this can be refined it will be fabulous and if we can then look at population estimates produced from drone counts compared with GoPro counts that will be very powerful.

This is a really beneficial partnership well done Andy.

Regards, Mark

Mark Read PhD

Assistant Director Reef Conservation Actions

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

2-68 Flinders St Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0540, mobile: (6) Personal information

Email: mark.read@gbmpa.gov.au



We acknowledge the traditional custodians of the Great Barrier Reef and throughout Australia. We pay our respects to their elders past, present and future.

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From: DUNSTAN Andrew [mailto:Andrew.Dunstan@des.qld.gov.au]

Sent: Monday, 16 July 2018 9:58 AM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; Mark Read <mark.read@gbmpa.gov.au>

Subject: FW: Raine - video automated processing of underwater gopro

Check this out guys, looking very promising indeed and we think the drone video should work well too. Next email has the link to the video

Cheers

Andy

From: (6) Personal information <(6) Personal information@qut.edu.au>

Sent: Saturday, 14 July 2018 8:44 PM

To: (6) Personal information <(6) Personal information@gmail.com>; DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Subject: Raine - video automated processing of underwater gopro

Hi Andy,

I have just sent you a movie via cloudstor. This is from about 5 hours of playing and developing an auto classifier for the turtles. The cloudstor link will allow you to download the movie. It is best watched at a slow speed as it is 5 minutes of continuous video sped up. The green squares are what I think are turtles, and the black is what my algorithm thinks looks like a painted turtle. It is not perfect but very promising. I haven't tried to reject the reef yet and you see a couple of false positives in one section, but the rest looks pretty solid.

(6) Personal information

| Principal Research Fellow (Autonomous Systems)

Institute for Future Environments | Queensland University of Technology

phone: + 61 7 3138 0392 | fax: + 61 7 3138 4438 | email: (6) Personal information@qut.edu.au

19-211

File F

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RTI Act 2009

Date : 4/07/2019 3:20:17 PM
From : "DUNSTAN Andrew"
To : "DSOUZA Marshall"
Subject : RE: Raine Island Drone Imagery
Attachment : image001.png;

Yeah, I think that's fine at least for a start Marshall. Will see what the subtraction action brings about identifying non-moved nesting seabirds from successive orthos. Maybe the oblique images can help this as well and I think a composite will work ok for this too.

Good luck
Andy

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>
Sent: Thursday, 4 July 2019 1:42 PM
To: DUNSTAN Andrew
Subject: Raine Island Drone Imagery

Hi Andy,

I'm just going through the drone imagery and ground control information for the imagery team to process. With regards to the oblique imagery taken over the 22nd and 23rd would processing it in one ortho affect bird counts? As this will be a composite of images from multiple days.

My thought is to use the oblique imagery with the nadir images for DEM generation and process the orthos for bird counting using only the images collected on the same day.

Cheers,



Marshall D'Souza
Spatial Information Officer
Land and Spatial Information | Geodesy and Positioning
Department of Natural Resources, Mines and Energy

P: 3330 4346
E: marshall.dsouza@dnrme.qld.gov.au
A: 275 George St, Brisbane QLD 4000

Date : 8/03/2019 1:20:01 PM
From : "DUNSTAN Andrew"
To : "DSOUZA Marshall" , "ROBERTSON Katharine"
Subject : RE: Raine Island Drone Processing
Attachment : image001.png;
[No worries Marshall, will be patient!!](#)

From: DSOUZA Marshall
Sent: Friday, 8 March 2019 12:10 PM
To: DUNSTAN Andrew; ROBERTSON Katharine
Subject: Raine Island Drone Processing

Hi Guys,

There's a delay in processing the December trip drone images. The imagery team is having issues with the 3D modelling software. This should be resolved next week. Sorry about the delay!

Cheers,



Marshall D'Souza
Spatial Information Officer
Land and Spatial Information | Geodesy and Positioning
Department of Natural Resources, Mines and Energy

P: 3330 4346
E: marshall.dsouza@dnrme.qld.gov.au
A: 275 George St, Brisbane QLD 4000

Date : 30/10/2019 4:16:09 PM
From : "DUTOIT Julie"
To : "DSOUZA Marshall"
Cc : "DUNSTAN Andrew" , "MCDUGALL Andrew (Rockhampton)"
Subject : RE: Raine Island Image Extracts around Acoustic Posts (April 2019)
Attachment : image001.png;

Hi Marshall – We have been looking at some of the individual images from June 2019 (have looked at R22, 23 and 24 so far) and they don't all seem to be north justified.

Can you amend this for us as it is extremely hard to patch together the whole circle when they aren't all the same orientation?
The JPEGs of the 'flight paths' are also confusing – are they north justified? If not could we get them north justified?

Note that I no longer have a desk phone – please use work mobile below!

Regards,
Julie Dutoit

ip4(6) Personal informa

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>
Sent: Monday, 28 October 2019 11:40 AM
To: DUTOIT Julie; DUNSTAN Andrew
Cc: ROBERTSON Katharine; ALDERSON Tina
Subject: RE: Raine Island Image Extracts around Acoustic Posts (April 2019)

Hi Julie,

I've added extracts for June 2018 to the below link, I am currently awaiting retrieval for the December 2017 from our imagery team. I'll have to see what can be done regarding the April 2018 footage.

<\\LANDS\Data\DNRME\Shared Transfer\Brisbane\RIRP\AcousticPostExtracts>

Regarding the data from June this year, due to issues with the images, notably blurred edges and off angle image capture that effects the photogrammetry software to identify matching points in adjacent images, an orthoimage was not able to be generated.

Individual images taken above the acoustic posts can be selected based on the GPS coordinates found in the image metadata. I've extracted images within 15m of each acoustic post and can be found in the share folder along with an image for each acoustic post that show the locations and file name of each drone image near the post. Without knowing the exact location of the image (mainly due to the inaccuracy of the drone gps), measuring distance in individual images is problematic and therefore a 10m circle around each post would be fairly inaccurate.

As a very rough guide, the width of each image covers about 23.23m and height covers 17.40m – This is based on the drone flying exactly 60m above ground and pointing directly down.

Feel free to call me to clarify any details.

Kind Regards,



Marshall D'Souza
Spatial Information Officer
Geodesy and Positioning | Land and Spatial Information
Department of Natural Resources, Mines and Energy

P: 3330 4346
E: marshall.dsouza@dnrme.qld.gov.au
A: 275 George St, Brisbane QLD 4000

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>
Sent: Friday, 25 October 2019 12:11 PM
To: DUNSTAN Andrew; DSOUZA Marshall
Cc: ROBERTSON Katharine; ALDERSON Tina
Subject: RE: Raine Island Image Extracts around Acoustic Posts (April 2019)

Hi Andy and Marshall – I've just reviewed my notes and should have included April 2018.
I've written down that the Inspire was used to film whole island – but we should be able to extract the acoustic circles from the whole island footage – is that also doable?

Note that I no longer have a desk phone – please use work mobile below!

Regards,
Julie Dutoit

ip4(6) Personal informa

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Thursday, 24 October 2019 10:06 AM

To: DUTOIT Julie; DSOUZA Marshall; ROBERTSON Katharine; ALDERSON Tina
Subject: RE: Raine Island Image Extracts around Acoustic Posts (April 2019)

Hi Julie, I think given the inability to ID the exact lat/long and therefore position of the loggers the June 2019 images are very problematic to get a decent image but we may give it a go (Marshall?). What about the other June 2018 and Dec 2017 images Marshall? Thanks mate

Cheers

Andy

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>
Sent: Thursday, 24 October 2019 9:35 AM
To: DUNSTAN Andrew
Subject: RE: Raine Island Image Extracts around Acoustic Posts (April 2019)

Hi Andy – Thanks for following up re the images.
When you say the orthomosaic from July failed, do you mean June 2019? And is orthomosaic the stitching together of drone images – if so do we still have individual drone images we could use?

I have counts that Andrew did around the acoustic monitors on 21 – 23 June 2019 – would be good if we could get the corresponding images of the acoustic circles... even if that we don't have the full island image.

Could we also get the images of the acoustic circles from:

- June 2018 - they were supplied previously but without the acoustic circles drawn on them which made it hard to work out what exactly was in or out of the circle
- Dec 2017 – my records show that the Inspire was flown then and we think that will still be good enough quality for the acoustic counts.

Note that I no longer have a desk phone – please use work mobile below!

Regards,
Julie Dutoit

p4(6) Personal informa

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Wednesday, 23 October 2019 3:19 PM
To: DSOUZA Marshall; DUTOIT Julie
Cc: MCDUGALL Andrew (Rockhampton)
Subject: RE: Raine Island Image Extracts around Acoustic Posts (April 2019)

Thanks heaps Marshall. Julie, we'll forward the next set from September once they're available. Drone images for the orthomosaic in July were a fail so we won't get anything from this period, sorry.

Cheers

Andy

From: DSOUZA Marshall <Marshall.DSouza@dnrme.qld.gov.au>
Sent: Wednesday, 23 October 2019 1:33 PM
To: DUTOIT Julie
Cc: DUNSTAN Andrew; MCDUGALL Andrew (Rockhampton)
Subject: Raine Island Image Extracts around Acoustic Posts (April 2019)

Hi Julie,

I've added extracts from the drone image around the acoustic posts on Raine Island, they are located in the link below and are labelled according to the acoustic post names, The image was sourced from the drone flight done on the 11th of April 2019. A 20m diameter circle was also added, with the centre point being the bottom of each acoustic post. The image then extends 5m from the edge of the circle.

\\LANDS\Data\DNRME\Shared Transfer\Brisbane\RIRP\20190411_AcousticPostExtracts

Let me know if you need any changes or have trouble accessing the share folder.

If you would like to see the full image I can transfer this across.

Cheers,



Marshall D'Souza
Spatial Information Officer
Geodesy and Positioning | Land and Spatial Information
Department of Natural Resources, Mines and Energy

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Date : 10/10/2018 3:48:59 PM

From : "MEAGER Justin"

To : "ROBERTSON Katharine" , "SCHAPER Dan"

Cc : "BIKAUNIEKS Paul" , "HESS Lee" , "HITCHCOCK Joel" , "BARNES Graham" , "COOK Tayce" , "Mark Read" , "LIMPUS Col" , "ALDERSON Tina" , "HITCHCOCK Nicole" , "DUNSTAN Andrew" , "MOISEL Alicia"

Subject : RE: Raine Trip - whale check

Attachment : Christiansen-2016-71158.pdf;image001.png;image002.png;

Hello Katharine and Dan,

In regards to your earlier email on restrictions for UAV use around whales, the following are relevant:

- UAV approaches of whales are not allowed closer than 300 m under the Nature Conservation (Wildlife Management) Regulation. My understanding is that closer approaches can be undertaken as an authorised activity by DES staff. This would have been the same for the in-water approach undertaken for the previous assessment of the whale's condition (i.e. an approach to < 100 m).
- CASA regulations: need a commercial licence to approach closer than 120 m in altitude
- Animal ethics committee approval: this doesn't apply because it is for management rather than for research.

I have attached a scientific paper discussing assessing body condition of humpback whales using an UAV. They approached to 30-50 m above the focal whale. For the purpose of assessing the body condition of the whale, it'd be easiest to compare a UAV image to that of a normal whale (one example in the paper), rather than attempt to calculate the body condition index as described.

With regards to in-water observations of whales, I am not aware of a Safe Work Practice for this. The 'swim with whales' industry code of practice is for whales in a normal situation, so isn't very relevant. I would not place people in the water together with the whale if it is exhibiting behaviour such as breaches, pec/tail slaps, erratic behaviour, prolonged dives, or rapid changes in swimming direction or speed. It would obviously also be not be a good idea to approach the whale with a UAV while there are staff in the water with the whale.

In regards to courses of action to take if the whale is still there mid October, this becomes more of an issue of managing public expectations against risks. I would consider the following three scenarios and possible courses of action:

Scenario 1: the whale has gone. Suggested action: media release that it has freed itself.

Scenario 2: the whale is still there and in reasonable/good body condition, exhibiting normal behaviour. In this case, the main risk is that the higher temperatures from November onwards will start to cause problems for it. This would then be a case of (1) attempting to scare it out on a high tide or (2) leaving it be and visiting again later to re-assess. Here option (2) would be the least risky to the animal and staff. Last year there was a similar case of a mother and calf stuck in a lagoon at Exmouth Gulf, WA (<http://www.abc.net.au/news/2017-06-20/whales-doomed-to-starve-inside-coral-reef-make-miraculous-escape/8634332>). These whales eventually escaped by themselves in January.

Scenario 3: The whale is still there and in very poor body condition. The choices would then be (1) not intervening and the animal potentially dying, and (2) intervening and accepting the risk that the intervention in itself could lead to the animal's demise (by stressing an animal in comprised health). Here I think that the public would expect us to take option (2), which would involve boats/noise to try to scare it out on a spring high tide. If it is curious, it may also be possible to lead it out.

Cheers, Justin

From: ROBERTSON Katharine

Sent: Wednesday, 26 September 2018 3:38 PM

To: MEAGER Justin; HESS Lee; MOISEL Alicia

Cc: BIKAUINIEKS Paul; SCHAPER Dan; HITCHCOCK Joel; BARNES Graham; COOK Tayce; Mark Read; LIMPUS Col; ALDERSON Tina; HITCHCOCK Nicole; DUNSTAN Andrew

Subject: RE: Raine Trip - whale check

Hi all,

We will have the UAV on board Reef Ranger on that trip as well trained UAV users, so this is a viable option of filming the whale if it assists with assessing condition and behaviour.

If you would like footage of it using the UAV, please let us know and what restrictions there are around it?

Thanks



Katharine Robertson

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 4047 9601

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

From: MEAGER Justin

Sent: Wednesday, 26 September 2018 2:32 PM

To: HESS Lee <Lee.Hess@des.qld.gov.au>; MOISEL Alicia <Alicia.Moisel@des.qld.gov.au>

Cc: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; BIKAUNIEKS Paul <Paul.Bikaunieks@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>; HITCHCOCK Joel <Joel.Hitchcock@des.qld.gov.au>; BARNES Graham <Graham.Barnes@des.qld.gov.au>; COOK Tayce <Tayce.Cook@des.qld.gov.au>; Mark Read <mark.read@gbmpa.gov.au>; LIMPUS Col <Col.Limpus@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; HITCHCOCK Nicole <Nicole.Hitchcock@des.qld.gov.au>; DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Subject: RE: Raine Trip - whale check

Alicia: if the video footage/photos are from the surface, it would be good to get images of the flanks to assess body condition. Or you could film it using a UAV if you have one with you – UAVs are fast becoming the standard for assessing humpback whale body condition and subsurface behaviour. Also observe for abnormal surface behaviour such as repeated breaches, pec slaps and fluke slaps (although noting that this could be a response to your vessel itself if you get closer than 100 m or so).

Lee: hazing/herding with a vessel risks further stressing the entrapped whale and often results in the whale swimming in the wrong direction/behaving unpredictably. I suspect in this situation that they get stressed by both the vessel attempting to herd it and the reef edge, and try to avoid both. Nicole Hitchcock might have the details of QPWS's attempts at herding the Bryde's out of the reef lagoon a couple of years ago. There are cases of whales that have survived being trapped without food for 100 days, and humpback whales can go long periods without food because they naturally fast for most of their migration to/from breeding grounds (compared to Bryde's whales which need more regular food intake). Let's hope that the whale uses the 3 m tides to escape.

Regards, Justin

From: HESS Lee

Sent: Wednesday, 26 September 2018 1:27 PM

To: MOISEL Alicia

Cc: ROBERTSON Katharine; BIKAUNIEKS Paul; SCHAPER Dan; HITCHCOCK Joel; BARNES Graham; COOK Tayce; Mark Read; LIMPUS Col; MEAGER Justin; ALDERSON Tina

Subject: Re: Raine Trip - whale check

Alicia

Is it worth considering some sort of hazing practice in direction of more open water?

Sent by Lee from iPhone

On 26 Sep 2018, at 12:56 pm, MOISEL Alicia <Alicia.Moisel@des.qld.gov.au> wrote:

Hi all,

As Paul mentioned there are some 3m tides on the 6th and 7th October, so this trip (leaving Cairns on 16 October) will be a good opportunity to see if the whale finds its way out on these big tides or not. Fingers crossed he is not there when we go past. If he is, he will have been in there for at least 80 days.

If he is still there, it would be great to get some more video footage so we can assess the body condition of the whale. Safety first, so if this can be done via vessel that is preferred. If we do need to put some people in the water please ensure a full risk assessment is undertaken first – he was getting quite close previously and if he's still there he's potentially a bit stressed. I know I'm a bit cranky and unpredictable when I'm hungry!!!

It would also be good to monitor and report on the behaviour of the whale compared to the last assessment (Dylan might be best placed to assess as he is the only staff member on the trip who saw it last time I believe). Might be worth monitoring the breathing rate too.

And if we can get a temperature reading of the water that would also be useful.

Justin/Col, please advise if there's anything additional, or more specific we need to be looking for.

Thanks,

Alicia.

From: ROBERTSON Katharine

Sent: Wednesday, 26 September 2018 9:47 AM

To: ALDERSON Tina; BIKAUNIEKS Paul; SCHAPER Dan; HESS Lee; HITCHCOCK Joel
19-211

File F

Page 389 of 462

Cc: MOISEL Alicia; BARNES Graham; COOK Tayce; DUNSTAN Andrew

Subject: RE: Raine Trip - whale check

Hi all,

Yes have confirmed with Joel as we are refuelling in the afternoon of the Wednesday that there will be time to stop at Irene Reef on the way up to Raine to check the whale.

Regards

<image003.png>

Katharine Robertson

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 4047 9601

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

From: ALDERSON Tina

Sent: Wednesday, 26 September 2018 9:03 AM

To: BIKAUNIEKS Paul <Paul.Bikaunieks@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>; HESS Lee <Lee.Hess@des.qld.gov.au>

Cc: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; MOISEL Alicia <Alicia.Moisel@des.qld.gov.au>; BARNES Graham <Graham.Barnes@des.qld.gov.au>; COOK Tayce <Tayce.Cook@des.qld.gov.au>

Subject: RE: Raine Trip - whale check

Katharine is OIC for the trip

Had a quick email chat to her – don't think it's a drama with refuelling at Lockhart – but suggest a double check with skipper for the trip

Otherwise no worries – go save the whale !!

Tina

From: BIKAUNIEKS Paul

Sent: Wednesday, 26 September 2018 8:01 AM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>; HESS Lee <Lee.Hess@des.qld.gov.au>

Cc: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; MOISEL Alicia <Alicia.Moisel@des.qld.gov.au>; BARNES Graham <Graham.Barnes@des.qld.gov.au>; COOK Tayce <Tayce.Cook@des.qld.gov.au>

Subject: Raine Trip - whale check

Hey all

Just wanted to check if it would be possible to swing by Irene Reef on the steam up to Raine to check up on the whale. This option would save on a separate trip of 2 days up to Irene Reef and also allow the next cycle of spring tides to occur which would give the whale an opportunity to escape.

Happy for your feedback please?

<image004.png> **Paul Bikaunieks**

Ranger In Charge

Great Barrier Reef and Marine Parks Region | Queensland Parks and Wildlife Service

Department of Environment and Science

P 07 40479607 M

100 - 106 Tingira St | Portsmith QLD 4870

PO Box 685 Bungalow Qld 4870

From: ALDERSON Tina

Sent: Tuesday, 18 September 2018 4:43 PM

To: BIKAUNIEKS Paul <Paul.Bikaunieks@des.qld.gov.au>; SCHAPER Dan <Dan.Schaper@des.qld.gov.au>; HESS Lee <Lee.Hess@des.qld.gov.au>

Cc: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>

Subject: Filming /diving at Raine

Hi

I believe the first trip to Raine has dept divers on board to do the moorings check etc in which case I was hoping it might be possible to get Qld Museum photographer Gary Cranitch in the water to film images for the 3D google side of things. Gary is available to come on the trip and is a commercial diver. He would also be taking heaps photos of other things – sat tagging, nesting turtles etc plus some focus on Traditional Owners on the trip for some TO focused media we are hoping to do in the near future.

Could you advise if this is possible re the diving and if there is anything I need to do from my end

Thanks

19-211

File F

Page 390 of 462

Tina

<image006.png>

Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

Queensland Parks & Wildlife Service

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100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

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Date : 22/11/2019 7:20:21 PM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew" , "ROBERTSON Katharine"
Subject : RE: Raine trips coming up

Andy
Feedback on the feedback on the feedback !
tina

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Friday, 22 November 2019 11:27 AM
To: ALDERSON Tina; ROBERTSON Katharine
Subject: RE: Raine trips coming up

Thanks Tina, will take it on board. Feedback from feedback added below

Cheers

Andy

From: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Sent: Wednesday, 20 November 2019 5:29 PM
To: DUNSTAN Andrew; ROBERTSON Katharine
Subject: Raine trips coming up

Hi

Some feedback on the last trip after today's ILUA WG meeting and pre-planning for the next

- As best as possible can we please have a TO on the island when there are others on the island – this includes during the day. It was brought up that there was 4 TOs on the trip but they primarily just did tagging – with little opportunity for other activities. When 4 on a trip please roster so this occurs when at all possible. Whether it be helping with drone /being shown how to use it, or other matters. TOs would really like variety in what they get to do and the opportunities - asked if interested in drones, or fencing, or the boat or ??

Yeah is all good if there are not actual tasks to be achieved and there is time for training. Definitely not feasible to have TO's on the island whenever work is happening there as the hours are too long and the tasks too specialised but as an additional person for training/involvement this can occur at times.

When there is 4 rangers this needs to be planned for if at all possible. If not it needs to be fully explained to Traditional Owners what is going on on the island, why and for how long. Making sure it is in a way that is not 'telling' but rather explaining and seeking any q's, concerns etc

- Andy – can you provide details around how much time it actually takes for the drone side of things – part of the idea with the drone was to save time however it seems to be taking considerable time and while I realise it valid work can come across as 'playing with a drone' – so we need to have clearly how long it will take on a trip and it rostered in (weather depending obviously).

Yeah, really shouldn't be questioned, especially given the last trip was short and frenetic with 12-14 hour days for me and 5 hour days for taggers!!!. All droning was a mix of extreme multi-tasking with remote network upgrade work with Riki and new drone trials. "Playing" is disrespectful and ignorant of the tasks but I do get about 'perception'. So..... all droning is a multi-tasking mix but includes 2 days of bird count/topography surveys (drone targets need to go out before and collected after)

3 days of painted turtle counts by drone (2 hours) and by boat (2 hours)

3 nights of night drone counts while tally counts are happening (2 hours)

Lots of other time with download or remote cameras, weather station, dataloggers and configuring remote equipment.

This is still an ongoing trial of many things so is not a final efficiency comparison at this stage. I organise the work program to suit priorities and involve TO's in as much variety of work as possible – the last trip was an anomaly because the valuable work to be done by not just TO's but rangers and staff (other than Riki and myself and Marshall) was tagging, tally counts and minimal rescue.

Can you confirm whether these days listed are at the same time or each – what I am trying to say is – is the 3 days of turtle stuff included in the 2 days of bird drone count /topo or is it 3 days of turtle stuff (4 hours) plus 2 days for topo/bird surveys ie 5 days.

I realise these things take time – I think its probably important to inform people what you are doing and for what purpose – if you just for eg write 'drone' or Andy on island or something similar its not clear to people what you are doing. I think you need to be more specific. Eg 4 hours of drone flights to capture painted turtle surveys or the like. That way it links to what people have been doing – ie you guys painted 2000 turtles last night. Today I will be sending the drone up to get footage, goes to auto image and then we get the accurate numbers of the turtles aggregating at raine. Otherwise people can think things in their heads without the knowledge – such as its just a flight to get nice turtle pics or shark pics. That communication is important.

I also realise things are ongoing trials – but let people know that too. Show some of the footage, explain what happens with it – goes to QUT etc or with the bird stuff being done so we don't have to disturb birds as much into the future and for more accurate counts etc. Without a full understanding people can just assume things.

- We need to ensure that all people on trips are culturally sensitive and appropriate – the turtle skull was brought up. It was put up on the sand moving trip at the end – noticed just as we were leaving – in hindsight I should have somehow knocked it down then, but we had no ladder etc with us anymore – all old stuff taken away on the barge. However the matter that concerned people more was the reaction of QPWS staff to the skull and its breaking/falling down – laughing out loud and making jokes etc – this was viewed by all the TOs as very insensitive and inappropriate. Please be really conscious of this in the future and ensure others are as well.

Point taken, did not witness the laughing and joking.

- Overall sometimes TO rangers feel that are not as 'respected' as team members as others – so keep this in mind.

Noted to make extra effort to address this, but not agreed with.

I think communicating more about what is going on will help address this

- In terms of planning /rostering for this next trip – there are multiple things going on, it's important to have that roster done prior to the trip (with the caveat that things can change) but all people on the trip need to be able to plan their sleep, work, rostering etc and not just have wait until that day. So in respect to rostering for this trip - given your leave Andy (and that you are acting in my role) Katharine can you please work on the roster asap given the tasks. This should include all participants on the trip inc you two, PMG fellow, Tai etc. It should be stuck to as much as possible.

Noted, and also noted that this is usually the case except for the last trip where it was difficult to find enough tasks/hours of work to keep TO's and others gainfully occupied.

Agreed it was much improved and yes it fell down on the last trip. This next one will be full of various activities so all needs to be planned. Thinking a dinner chat each night about whats going on the next day and why would be worthwhile as well as the roster and the board.

- Whoever is in AO7 role in Jan/Feb trip should be planning not to go on the field trip. I will not be able to do much for the Project when acting as RD so the AO7 needs to be here and not on Raine for that trip. The two PO positions can be on the trip.

No worries

Happy to talk through some of this stuff if need be
Tina

Tina Alderson

Acting Principal Ranger

Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P (6) Personal info

100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870

Date : 15/10/2019 12:20:41 PM

From : "ALDERSON Tina"

To : "Mark Read" , "DUNSTAN Andrew" , "HEMSON Graham"

Subject : RE: report request [SEC=UNCLASSIFIED]

Attachment : image002.jpg;image003.png;image004.jpg;image005.jpg;image006.png;image007.jpg;

I don't have a drama with sharing

From: Mark Read <mark.read@gbmpa.gov.au>

Sent: Tuesday, 15 October 2019 11:48 AM

To: ALDERSON Tina; DUNSTAN Andrew; HEMSON Graham

Subject: FW: report request [SEC=UNCLASSIFIED]

Guys,

Please see below a request from Tony from TSRA wanting to access the Raine Island Drone use SOP.

Just checking in with you regarding making this SOP available to share?

Thoughts?

Regards, Mark

Mark Read PhD

Assistant Director – Reef Conservation Actions

Joint Field Management Program for

Great Barrier Reef Marine Park Authority and

Queensland Parks and Wildlife Service

280 Flinders St Townsville | PO Box 1379 Townsville QLD 4810

Phone: (07) 4726 0540, mobile: p4(6) Personal informa

Email: mark.read@gbmpa.gov.au



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From: GBRMPA Info

Sent: Tuesday, 15 October 2019 9:14 AM

To: Mark Read <mark.read@gbmpa.gov.au>

Cc: GBRMPA Info <gbrinfo@gbmpa.gov.au>

Subject: FW: report request [SEC=UNCLASSIFIED]

Hi Mark,

Are you able to advise/direct Tony to the appropriate information he is requesting?

Thanks,
Sue

Communications and Regional Engagement

Great Barrier Reef Marine Park Authority

280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810

Phone: 07 4750 0700

Fax: 07 4772 6093

Email info@gbmpa.gov.au



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From: sch4p4(6) Personal information@tsra.gov.au>
Sent: Tuesday, 15 October 2019 8:57 AM
To: GBRMPA Info <gbrinfo@gbmpa.gov.au>
Subject: RE: report request [SEC=UNCLASSIFIED]

Hi Sue,

Thanks for your reply.

I am actually interested in the details of the report for work (I'm in the Torres Strait), specifically the drones heights recommended for surveying different coastal bird species on Raine Island, and not because I want to use a drone in the GBRMP.

Is it possible to get a copy of the report?

Regards,

4(6) Personal infor

**SNRMO - Terrestrial
Land and Sea Management Unit
Torres Strait Regional Authority**
Thursday Island, QLD
PO Box 261, Thursday Island, QLD 4875
Telephone (07) 4069 0700 **Fax** 0740691879
Email Tony.Popic@tsra.gov.au
www.tsra.gov.au



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From: GBRMPA Info [<mailto:gbrinfo@gbmpa.gov.au>]
Sent: Tuesday, 15 October 2019 8:44 AM
To: sch4p4(6) Personal information tsra.gov.au>
Cc: GBRMPA Info <gbrinfo@gbmpa.gov.au>
Subject: RE: report request [SEC=UNCLASSIFIED]

Good morning Personal in

A permit is not required if the drone (including equipment) weighs less than 5kg, if heavier than 5kg you will require a permit, this can be obtained through our [website](#).

Kind regards.

Sue Sellars
Customer Services Officer
Communications and Regional Engagement
Great Barrier Reef Marine Park Authority
280 Flinders Street Townsville | PO Box 1379 Townsville QLD 4810
Phone: 07 4750 0750
Fax: 07 4772 6093
Email: Sue.Sellars@gbmpa.gov.au



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From: sch4p4(6) Personal information@tsra.gov.au>
Sent: Monday, 14 October 2019 5:13 PM
To: GBRMPA Info <gbrinfo@gbrmpa.gov.au>
Subject: report request [SEC=UNCLASSIFIED]

Hi there,

I am after a report which I am hoping you have access to and can supply:

Standard operating procedure for drone use: Raine Island National Park (Scientific). June 2017

Regards,

6) Personal info

SNRMO - Terrestrial
Land and Sea Management Unit
Torres Strait Regional Authority
Thursday Island, QLD
PO Box 261, Thursday Island, QLD 4875
Telephone (07) 4069 0700 **Fax** 0740691879
Email 6) Personal info tsra.gov.au
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Date : 14/08/2018 4:00:18 PM
From : "MCDOUGALL Andrew (Rockhampton)"
To : "DUNSTAN Andrew"
Cc : "HEMSON Graham"
Subject : RE: Request for Raine Island Data
Attachment : image001.png;image002.png;image005.png;image006.png;
Ok, good to go.
We have our quota.

Out of interest Andy, I could identify a couple of buff-banded rails as well so the imagery is good!

From: DUNSTAN Andrew
Sent: Tuesday, 14 August 2018 3:53 PM
To: MCDOUGALL Andrew (Rockhampton)
Cc: HEMSON Graham
Subject: RE: Request for Raine Island Data

Cool, will test what we have once you finish with the common noddies.

From: MCDOUGALL Andrew (Rockhampton)
Sent: Tuesday, 14 August 2018 3:34 PM
To: DUNSTAN Andrew
Cc: HEMSON Graham
Subject: RE: Request for Raine Island Data

I think start with making sure the simple things work, and then add complexity.

From: DUNSTAN Andrew
Sent: Tuesday, 14 August 2018 3:30 PM
To: MCDOUGALL Andrew (Rockhampton)
Cc: HEMSON Graham
Subject: RE: Request for Raine Island Data

Thanks guys brilliant ID effort and I think that's a good summary of what to focus on as well. If you can manually identify chicks, young and adolescents to species within the training image then I imagine the machine learning may add a 'closest adult' factor to aid in species ID if physical factors are not enough. Does this mean the image guys need to create a new image with layers for each species for

- Adolescent
- Young
- Chick
- Nest
- Nesting adults
- Non-nesting adults

..... and that Andrew and Julie are happy to continue with the ID process to get this training image ready.

OR

Is this the next phase once we test out the training and counts just relevant to adult birds and then maybe test subtraction analysis to ID nesting birds? I suggest this if you're happy with this as an initial plan to get some runs on the board and confidence and learning of what's possible or not

Cheers

Andy

From: MCDOUGALL Andrew (Rockhampton)
Sent: Tuesday, 14 August 2018 3:02 PM
To: DUNSTAN Andrew
Cc: HEMSON Graham
Subject: RE: Request for Raine Island Data

Hi Andy,

<https://qportal.information.qld.gov.au/arcgis/apps/webappviewer/index.html?id=8f592f62400c4ffb9b50702b97a09794>

If you have a look at the link now I have had a fair crack at identifying species and trying to get the appropriate numbers of the most common ones for analysis. I still have a few hundred common noddies to go (to get to the 1000 mark), but I think I have nearly all the lesser frigatebirds (the only other species that will total over 1000).

As Graham mentioned we are interested in breeding effort, so for each species I would suggest:

- Adult on nest
19-211

- Adult other
- Adolescent
- Young
- Chick
- Nest (as there may be nests where the adult has been flushed but we can still identify species – this may be too hard as an automated function, but would be handy as a manual category).

I don't know the capabilities of lumping male and female together. If the program can identify "frigatebirds" over all other species we could query populations by location i.e. we have a good chance of differentiating great frigatebirds and lesser frigatebirds by nesting location.

For flying birds, the only species that has been noticeable has been red-tailed tropicbirds. I don't know if they flush more easily with the drone than others or the time of day the footage was taken coincides with the parent changeover.

I also note the imagery stitching has the possibility of making multiple records of the same bird/birds – see the attached tropicbirds. We wouldn't need flying birds necessarily as a count function. Would be a good way to find things like white-tailed tropicbirds in flight.

A problem species may be red-footed boobies – with the three colour combinations and the adolescents being indistinguishable from the adults making "automated" counting no doubt difficult. If it can generalise "booby" then adult on nest is certainly doable.

So if the automated count did the bulk of the species great, and as long as there was some mechanism to apply some manual queries that would be useful too.

If there is more manual testing I would suggest dark symbols for light coloured birds and light for dark species – it would make reviewing a lot easier.

If there was a grid function you could overlay the image with that would also be helpful to distinguish what parts of the island are already covered.

If I think of anything else I'll send through.

Andrew

Andrew McDougall
Acting Team Leader
Ecological Assessment Unit
Department of Environment and Science

andrew.mcdougall@des.qld.gov.au
P 07 4936 0110
61 Yeppoon Road, Parkhurst 4702
PO Box 3130, Red Hill, Rockhampton, 4701



From: HEMSON Graham
Sent: Tuesday, 14 August 2018 2:10 PM
To: DUNSTAN Andrew
Cc: MCDUGALL Andrew (Rockhampton)
Subject: RE: Request for Raine Island Data

Andy,

I've CC'd Andrew in and he may have very different ideas to me.

All of that info is useful but I think it comes to how much effort can people put into developing techniques and algorithms. I'm assuming they have limited resources so we should prioritise what we most want to know.

End result is we want to be able to total up the number of all different age classes of each species. By doing so we know the number of nesting birds (reproductive effort) and if we did it often enough we might even know reproductive success.

The walking/flying birds are also useful in terms of the total number of birds but when I start thinking about the time it takes for a drone to do a total island pass and the chance of flying bird numbers being meaningful I struggle.

We could easily lose the highlighted bits below and change walking to NOT NESTING. I do think we have glossed over the chicks, young, juveniles a bit. They are often so different to adults (white puff) to be as different as a separate species. So I'd prefer to have more effort targeted at age classes.



Graham Hemson PhD

Acting Principal Ranger (Technical Support)
Great Barrier Reef and Marine Parks Region.

P 07 4936 0113 M (6) Personal info

61 Yeppoon Rd, Parkhurst, Qld 4702

PO Box 3130, Red Hill, Rockhampton, Qld, 4701

From: DUNSTAN Andrew

Sent: Monday, 13 August 2018 5:17 PM

To: HEMSON Graham

Subject: FW: Request for Raine Island Data

Any thoughts Graham? May as well have them try as much as possible but thinking for gender it would entail re-identifying individuals to gender so may not do this? No need for flying birds?

From: sch4p4(6) Personal information @boeing.com>

Sent: Monday, 13 August 2018 4:24 PM

To: DUNSTAN Andrew

Subject: RE: Request for Raine Island Data

G'day Andy,

This image data is fantastic. We've had our SMEs look over the dataset and the response has been positive.

I'm in the process of putting together a project proposal and I'm defining some semi-formal technical requirements from our previous discussions.

Could I please get your thoughts on the following?

The Image Analysis Software **shall** identify NOT NESTING seabirds in the supplied imagery.

The Image Analysis Software **should** identify flying seabirds in the supplied imagery.

The Image Analysis Software **shall** identify nesting seabirds in the supplied imagery.

The Image Analysis Software **shall** determine species of identified seabirds.

The Image Analysis Software **should** determine gender of identified seabirds.

The Image Analysis Software **shall** maintain counts of seabird species.

The Image Analysis Software **shall** maintain counts of nesting seabirds.

The Image Analysis Software **shall** identify geospatially clustered same-species of seabirds.

If there are any unnecessary requirements here or any additional I haven't specified, please let me know.

Cheers,

4p4(6) Personal informa

Software Engineer

Corvus, Phantom Works - International

P: +61 7 3306 3628 | M: 4p4(6) Personal informa

E: kody.cook@boeing.com | GPO Box 767, Brisbane QLD 4001



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From: DUNSTAN Andrew [<mailto:Andrew.Dunstan@des.qld.gov.au>]

Sent: Monday, 6 August 2018 12:34 PM

To: sch4p4(6) Personal information @boeing.com>

Subject: RE: Request for Raine Island Data

Sounds great Personal i

Here's a link to the orthomosaic and the program to allow birdos to identify and mark individuals of key species for machine learning.

<https://qportal.information.qld.gov.au/arcgis/apps/webappviewer/index.html?id=f4748bb7db8e4bd3858a51945f11bfc5>

Bird species are currently labelled species 1, species 2 etc but will be replaced with a full named list shortly.

Hope this works for you but let me know if you need anything else.

Cheers

Andy

From: sch4p4(6) Personal information <[sch4p4\(6\) Personal information@boeing.com](mailto:sch4p4(6) Personal information@boeing.com)>

Sent: Monday, 6 August 2018 6:55 AM

To: DUNSTAN Andrew

Cc: Delachapelle (US), Michael

Subject: Request for Raine Island Data

G'day Andy,

We just finished our flight trials and I have a little bit of time to start scoping the RIRP Seabird Imagery Analysis Project.

In order to define the complexity/effort for our leadership team, we'll need one of the pre-processed photomosaics or at least a reasonable subset of the imagery data.

How did you go about getting some of it cleared in terms of licencing?

Cheers,

4p4(6) Personal informat

Software Engineer

Corvus, Phantom Works - International

P: +61 7 3306 3628 | M: p4(6) Personal inform

E: 6) Personal info <[6\) Personal info@boeing.com](mailto:6) Personal info@boeing.com)> | GPO Box 767, Brisbane QLD 4001



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Date : 12/11/2019 9:58:25 AM

From : "DUNSTAN Andrew"

To : "ROBERTSON Katharine" , "ALDERSON Tina"

Subject : RE: RG meeting

Attachment : RG Nov 2018 Attachment 2 Paper 3 Success Measures.xlsx;image001.png;

That's fine thanks Kat. Also is the last Success measures excel files the one I have attached here from RG Nov 2018

From: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>

Sent: Tuesday, 12 November 2019 9:54 AM

To: DUNSTAN Andrew; ALDERSON Tina

Subject: RE: RG meeting

Hi Andy,

I've got a pdf version of David's presentation which is attached.

I don't think I grabbed the actual PowerPoint from him though.

Katharine

From: DUNSTAN Andrew

Sent: Tuesday, 12 November 2019 9:48 AM

To: ALDERSON Tina; ROBERTSON Katharine

Subject: RE: RG meeting

Tina and Katharine did you get a copy of David's PowerPoint presentation on Nest environment? Might be an easier source to summarise for an agenda paper

Cheers

Andy

From: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Sent: Monday, 11 November 2019 4:07 PM

To: DUNSTAN Andrew; ROBERTSON Katharine

Subject: RE: RG meeting

Even though we are not having the RG meeting (quiet yeh!)

Will still need the papers done for the ILUA WG meeting and then after that meeting they may have to be done up into a doc for members of the RG

Ta

Tina

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Thursday, 7 November 2019 11:40 AM

To: ALDERSON Tina; ROBERTSON Katharine

Subject: RE: RG meeting

Ok, back in range now and nearly at TI. Will get onto this and should be fine and will ask Katharine to finish SAG minutes

Cheers

Andy

From: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>

Sent: Thursday, 7 November 2019 10:44 AM

To: DUNSTAN Andrew; ROBERTSON Katharine

Subject: RE: RG meeting

Sorry – somehow that sent – finished off my last sentences now – see below

From: ALDERSON Tina

Sent: Thursday, 7 November 2019 10:42 AM

To: DUNSTAN Andrew; ROBERTSON Katharine

Subject: RG meeting

Right well a few changes re RG and things I am going to have to pass to you Andy as a priority

Agenda went out today for the RG and I will get the one for the ILUA WG out today as well

Few changes from Damien in there

Andy:
Urgent priorities are:
Agenda item 5 – Results from nesting env
- I cannot see a paper for this – is there meant to be ? if there is needs to be drafted asap
Agenda item 6 – Sci papers
- updated with info we have to date – may involve some phone calls !
Agenda item 7 – whole of project achievement
- this will need to be drafted – based off the last one, new draft paper and the success measures doc.
- Success measures table – will need updating asap to attach as an attachment to the paper
- Proposed awards nominations – I will draft up an attachment on this
Agenda item 10 – SAG outcomes
- Minutes – final version (as per my other email) needed

The papers collated into one document will need to go out by mid next week – Wed arvo or Thurs AM at the latest. – it has to go to the ILUA WG with their other stuff as well for their meeting on the 20th.

I am pretty much in meetings all day Monday in Cairns so completely out for that day.
Please advise asap if all this is possible
Regards
Tina

From: ALDERSON Tina
Sent: Wednesday, 6 November 2019 9:48 AM
To: DUNSTAN Andrew; ROBERTSON Katharine
Subject: Sci papers agenda item and SAG minutes - RG meeting

Hi
Couple of queries
- Agenda paper 11 – sci papers – did this get updated at all ? If not Andy it's a priority when you get back please - needs to go out next week
- Agenda paper 8 – SAG – given to mark and got a couple of edits back. Katharine - Did the SAG minutes got out after they went to Mark and what is the date they are due back ? ie when can they be finalised to go with the agenda ?
Otherwise I think I have updated and checked so will get the agendas for the ILUA WG and RG meetings out today or tomorrow and most of the papers
Ta
Tina



Tina Alderson
Project Manager
Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region
QPWS & Partnerships
Department of Environment and Science

(b) Personal information
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

Exploring Management Interventions	Performance Measure	Pre-project	Project Progress	Target	EOY Status	Comments
Improving adult turtle survivorship	Adult turtles saved through exclusion fencing or landscape modification ¹			1000		
	Adult turtles saved through rescuing from entrapment, cliff falls and heat exhaustion ²		542	300		
	Turtle exclusion fencing installed (total metres installed)		1500			Initial fencing was installed in 2011. (100m 11/12, 150m 12/13, 150m 13/14 = 400m)
	Amount of landscape modification (m) ³					Infilling underneath 'death rock'
Increasing viable turtle nesting area	The proportion of the nesting beach area above inundation level (metres squared (% increase))					20% of nesting beach re-profiled after Sept 2017
Increasing turtle recruitment	Increased rate of hatchlings reaching the sea (% increase x % island modified) ⁵					
	Increased hatching success (% increase x % island modified) ⁵					
	Increased nesting success (% increase x % island modified) ⁵					
Increasing management presence at Raine Island	Number of days present at Raine Island (+FTE days) ⁶					
Reducing disturbance to seabirds	Reduction in the access points for turtles to central seabird nesting ground (% of perimeter) ⁷					equals % cliff perimeter fenced
	Less invasive seabird monitoring methods adopted ⁸					25 acoustic monitoring stations installed and drones used for seabird monitoring. Anticipated reduction in ground observer impacts once methods have been trialled and refined by 2018-19.

- ² actual count
- ³ m of cliff edge removed/made safe, m of beach rock infilling
- ⁴ metres square and cumulative increase
- ⁵ % increase in reprofiled area compared to control areas in a nesting season
- ⁶ Raine Island trips day and trip days x number of people on trip
- ⁷ % of perimeter of phosphate cap that allows for turtle access
- ⁸ e.g., acoustic monitoring, drones reducing ground observer impacts

2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
20	40 (60)	182 (242)	263 (505)		
400 (800)	200 (1000)	150 (1150)	350 (1500)	250 (1750)	
			15	15	
			20% re-profiled		
90%	17%	32%	46%		
1%	24%	9%	5%		
68%	3%	-39%	3%		
71	52	73	97		
		Drones trialed, accoustics installed	Continued drones use, accoustics + start auto image		

Raine Island Recovery Project Performance Measures							
Building Indigenous Capacity, Relations and Engagement		Performance Measure	Pre-project	Project Progress	Target	EOY Status	Comments
Increasing the awareness of the island's cultural values	Cultural awareness training package developed ¹		No		Yes		
	Project participants aware of island's cultural values (number of participants inducted) ¹		0		All		
	Cultural Heritage Plan developed and upheld ^{2 3}		No		Yes		Drafted in 2017
Establishing partnerships with Traditional Owners	Traditional Owner Engagement Plan developed and enacted ⁴		No	Ongoing	Yes		
Increasing Traditional Owner presence on country	Traditional Owners at Raine Island (number of days and +FTEs) ^{5 6 7}						
	Number of Indigenous Rangers employed during project ⁶						
	Number of days Indigenous Ranger employed on country ⁶		0				
Improving Traditional Owners' role in decision making	Traditional Owner groups represented in Reference Group ^{8 9}		No		Yes		
	Indigenous Land Use Agreement meetings held (ILUA) ^{8 10}						
	Permits/approvals issued requiring Traditional Owner consent (number) ^{11, 12, 13}		0				
Increasing understanding of Island values and role to Traditional Owners	Presentations at Traditional Owner group AGMs		0	1	5		
	Presentations to Indigenous communities and schools		0	7	20		
	Number of Traditional Owner focused project newsletters produced		0	2	5		

¹ Relates to UNDRIP Article 15
² Relates to UNDRIP Article 12
³ Relates to UNDRIP Article 13
⁴ Relates to UNDRIP Article 29
⁵ Days on Raine Island trips and trip days x number of Traditional Owners on the trip
⁶ Relates to UNDRIP Article 11
⁷ Relates to UNDRIP Article 25
⁸ Relates to UNDRIP Article 18
⁹ Relates to UNDRIP Article 32
¹⁰ Relates to UNDRIP Article 40
¹¹ Relates to UNDRIP Article 19
¹² Relates to UNDRIP Article 25
¹³ Relates to UNDRIP Article 31

Annual Breakdown (+ cumulative)					
2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
			Draft video	Plan and posters	
				All sent poster plan	
				Completed plan and poster versions	
			draft plan		
		yes	yes	yes	
108	60	122	330	42	
4	5	8	10	12	
102	92	167	307		
	yes	yes	yes	yes	
	1	4	2	1	
		1	0	0	
	2	6	2	1	
	1	1	0	1	

Raine Island Recovery Project Performance Measures						
Improving Knowledge and Understanding (including Threats and Values)	Performance Measure	Pre-project	Project Progress	Target	EOY Status	Comments
Increasing understanding of mechanisms of hatching failure	Experiments conducted and an increased understanding of the mechanisms contributing to hatching failure					A series of experiments have been conducted over the past years and have been discussed and recommendations for further work produced from the Nest Environment Summit in 2017. The existing body of work to date has been valuable in understanding mechanisms better and directing future research and management.
	Adaptive Management Strategy for Seabirds on Raine Island National Park (Scientific) and bird monitoring SOP developed	No	Yes	Yes		
	Monitoring techniques refined to improve accuracy and precision (reduction in error bars)					
Improved confidence levels around trends of seabird population numbers at Raine Island	Number of days of seabird monitoring ¹	3		300		
Improved confidence levels around trends for turtle data at Raine Island	Monitoring and analysis techniques that improve accuracy and precision (reduction in error bars)					
Increased understanding of the geomorphology of Raine Island	Development of a high definition topographical predictive model	No		Yes		
	Development of a complete and accurate sediment budget to understand cay morphodynamics					
	Monitoring and analysis techniques that improve accuracy and precision (reduction in error)					
Sharing the key project learnings with the science and management communities	Presents at national and international conferences			At least 5		
	Publish peer reviewed papers			At least 10		
	Data publicly available	No		Yes		
	Establish data sharing and partnership arrangements with research institutions/Government agencies					
	Project innovating new research and monitoring techniques for broader application (eg drones and remote sensing)	No		Yes	with comments	

¹ constant autonomous monitoring

Annual Breakdown (+ cumulative)					
2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Relocation of clutches to experimental plot to test inundation effects. Eggs moved from island to lab incubation experiments to test effect of Raine Island sand pathogens (sterilisation of media versus normal sand). Lab based inundation experiments to test timing and impact of inundation on hatching success.	Start of measuring nest level temperature in transects across the nesting beach full time. Preliminary nest level respiratory gas measures.	More detailed inundation mapping. Respiratory gas measurements of developing nests and hatching success. Gas measurements at nest level throughout nesting beach. Nest temperature measures both at nest level across the nesting beach and also within clutches. Nesting environment summit held May 2017	Nesting environment research EOI being developed	Nesting environment research proposals assessed. UQ lead participant in approval research. Grant deed finalised with UQ. Research commenced on site Oct 18	
	Initial drone trials conducted in parallel with observer based monitoring to direct production of SOP for both methods	Strategy and drone SOP developed. 10 RTTB nest boxes insalled	2 RTTB found nesting in the nest boxes - 1 successfully raising egg to adolescent.		
dGPS marking of RTTB nests	Drone methods trialled	Drone methods refined. Automated image analysis beginning. 25 Acoustic monitoring stations installed	Drone methods further refined. Automated image analysis underway. Acoustic monitoring analysis underway		
GoPro methods for total turtle census. Increased data including 2 hourly tally counts and distribution of turtles during nesting success surveys. Continued monitoring of nesting beach with night still cameras. Improved methods for dGPS nest marking and hatching success measurement.	Drone methods for total turtle census.	Drone workshop for a recommendation of a range of technology including use of still cameras and drone thermal and IR cameras for night monitoring and range of applications and outputs from automated image analysis.	Installation of upgraded still and video monitoring equipment and nest environment loggers. Trial of autmoated image analysis and above equipment during 2017-18 season		
	Drones used in parallel with dGPS surveying to produce HD topographic models	Drone workshop with expert recommendations for HD topo model measurement and production - outcomes implemented. Projects and deed grants with JCU approved. Initial fieldwork undertaken including topo surveys, foraminiferan sampling, bathymetric mapping	Drone and dGPS mapping and DEM and photomosaic outputs standardised. DNRM archiving of topographic data almost complete.		
dGPS base station installed, weather station continued and topo mapping continually upgraded.	Drone mapping implemented	Drone workshop convened and expert advice implemented	Drone and mapping techniques further refined and drone purchased for standard flight paths and in-house monitoring		
IUCN world Parks Congress, Sydney.	GBRF Science forum, ICRS Hawaii, ISTS Peru, Locate 16 Melbourne, UAS Drone Conference Brisbane, Aust Turtle Rehab Cairns, Island Arks Symposium Norfolk Is - poster	GBRF Chairmans Panel, AMSA Darwin, Aust Sea Turtle Symposium Darwin	Turtle Health and Rehabilitation Symposium Townsville Surveying and Spatial Sciences Institute Conference International Sea Turtle Symposium Japan Land and Sea Rangers Conf Cairns Foraminifera conference - Scotland	Australian Sea Turtle Symposium Bundaberg - 1 session with 8 presentations on the Project	
2014-15 Scientific report published after peer SAG review	2015-16 Scientific report published after peer SAG review	2016-17 Scientific report published after peer SAG review	Booth et al Respiratory nest gas paper published in Plos ONE	Number of papers in final draft	
			In progress		
			In progress		
remote sensing, remote cameras, WIFI and satellite network, dGPS all being used	Drone use implemented	Acoustic monitoring and autoated image analysis implemented and under trial	Upgrade of remotre sensing network , loggers and cameras. Implementation of Drone workshop recommendations for innovative new techniques, including broader sharing of Raine innovations with attendees		

Raine Island Recovery Project Performance Measures						
Driving Innovation and Science Refinements	Performance Measure	Pre-project	Project Progress	Target	EOY Status	Comments
Leading innovation in passive monitoring techniques	Development and publication of standard operating procedures for drone usage in monitoring seabird and turtle populations	No		Yes		
	Techniques developed for remote monitoring of turtles	No		Yes		
	Large scale passive acoustic monitoring of seabirds developed and tested	No		Yes		
Leading take up of the adaptive management model in park management	Peer reviewed papers published on refined monitoring techniques					
	Real time data collection via establishment of high speed internet connection	No		Yes		

Annual Breakdown (+ cumulative)						
2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
	Initial drone trials conducted in parallel with observer based monitoring to direct production of SOP for both methods	SOPs refined including through an expert Drone Workshop	Publication of SOPs as scientific paper almost complete	SOPs implemented successfully for all drone activities in the RIRP		
Night time still camera monitoring for nesting turtle numbers and distribution	Drone methods for total turtle census.	Drone workshop for a recommendation of a range of technology including use of still cameras and drone thermal and IR cameras for night monitoring and range of applications and outputs from automated image analysis.	Equipment installed and techniques being trialled, including automated image analysis	Drone methods compared with other methods and data showing efficient and accurate results. Automated analysis for painted turtle counts is progressing well.		
		Acoustic monitoring implemented and being tested		Acoustic monitoring implemented, data gathered systematically and currently be analysed		
		Papers on drone based seabird monitoring SOPs, dGPS nest marking and hatching success, and moniroting and mapping tidal inundation of the nesting beach are well prooeressed.	dGPS nest marking and GoPro/Drone painted turtle monitoring technique papers almost complete	dGPS nest marking and GoPro/Drone painted turtle monitoring technique papers with statistical analysis complete and draft papers nearly finalised		
		NBN satellite connection installed and operating effectively.	Weather station, still night cameras and HD video cameras linked to NBN satellite live feed.	Weather station is now a live feed and will soon be linked to BOM site. Still cameras are collecting quality footage day and night and		

Raine Island Recovery Project Performance Measures						
Expanding Public Awareness	Performance Measure	Pre-project	Project Progress	Target	EOY Status	Comments
Increasing awareness of Raine Island and it's significance	Number of media releases			6 per year		
	Size of media audience reached			Yes and No. of hits		
	Dedicated webpage developed					
	Annual webpage hits					
	Number of social media posts (+ likes)			10 per year		
	Number of events attended (audience size) - eg 3 events - estimate of 100 people, or 10 000 through gate			2 per year		detail in comments box - eg World Oceans Day BHP
	Number of schools engaged			4 Traditional Owner schools		
	Featured in television documentaries					
	Satellite imagery publicly available					

Annual Breakdown (+ cumulative)					
2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	6 releases	6 releases	6 releases	1 release	
	Digital story development commenced	Digital Story live	Web page development		
		13 facebook posts	11 facebook posts (inc 5 days of 'Raine week')		
	World Science Day Marquee	Ecofiesta Cairns Cape York and Douglas Local Marine Advisory Groups	Cape York LMAC World Turtle Day event Cairns		
	1	4	4	8	
	ABC Life on Reef Series - episode 2				
			5 turtles tracks put on seaturtle.org Video of tracking migration back to the feeding ground put on QPWS	13 turtles tracks put on seaturtle.org	

Raine Island Recovery Project Performance Measures						
Delivering Successful Partnerships and Strong Project Governance	Performance Measure	Pre-project	Project Progress	Target	EOY Status	Comments
Pioneering Traditional Owner, Government, Non-Government Organisation and Private partnership model	Triparty agreement reached on management actions					
	Terms of reference developed with representation from all partners	No		Yes		
Adopting strong governance framework for decision making informed by best science (Scientific Advisory Group established)	Terms of reference upheld					
	Number of meetings per year (Reference group/Scientific Advisory Group)	0		2 Sets per year		
	Diversity of membership of SAG (different expertise)					
	Diversity of membership of RG (% govt, others, TO's, managing agency, species experts)					
	Budget expended within 5% p.a					
Upholding contractual obligations	Contract obligations fulfilled					
	Reports submitted on time					
	Project used as exemplar to secure other private/public partnerships					

Annual Breakdown (+ cumulative)					
2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	yes	yes	yes	yes	
	yes	yes	yes	yes	
	SAG - 2 Ref Group - 1	SAG - 2 Ref Group - 3	SAG -2 Ref Group - 2	SAG -1 Ref Group -	
	9 members - Turtle, seabird, biostatistical, geomorphology, government	9 members - Turtle, seabird, biostatistical, geomorphology, government	9 members - Turtle, seabird, biostatistical, geomorphology, government	10 members - Turtle, seabird, biostatistical, geomorphology, government. Addition of technology expert. Indigenous Scientist to be added soon	
	14 members - 6 Traditional Owners; 2 State Govt; 3 Comm Govt; 1 TSRA; 1 JCU; 1 GBRF	14 members - 6 Traditional Owners; 2 State Govt; 3 Comm Govt; 1 TSRA; 1 JCU; 1 GBRF	14 members - 6 Traditional Owners; 2 State Govt; 3 Comm Govt; 1 TSRA; 1 JCU; 1 GBRF	14 members - 6 Traditional Owners; 2 State Govt; 3 Comm Govt; 1 TSRA; 1 JCU; 1 GBRF	
	underspent - funds to govt in May 16	underspent - carryover	yes	carry over for sand re-profiling works	
	yes	yes	yes		
	yes	yes	yes		

Field Trips 2015/16

Date	Field trip days	Days on site	Traditional Owners	Personnel	Activities	Vessel	
July 7-13	7	6	nil	3 x EHP 6 x QPWS 2 x JCU 1 x Biopixel 1 x tower surveyor 1 x DNRM	Fencing Tower survey Network download Topographic survey	Reef Ranger	
Nov 27 - Nov 30	4	2		7 x QPWS 2 x TO's 2 x GBRF 1 x BHP 3 x GBRMPA 1 x DoE	VIP field presentation of the Raine Island Recovery Project	Reef Ranger	
Nov 30 – Dec 14	14	10		9 x QPWS 1 x GBRMPA 1 x DNRM 2 x TO's 2 x AUT 1 x Biopixel	Turtles – nesting success, population, mortality, nest marking, satellite tagging, tagging, 500 count, total census, rescue Topographic survey, Network download, Seabird survey + RTTB, Drone trials	Reef Ranger	
Jan 26 - Feb 8	14	10		5 x QPWS 1 x GBRMPA 1 x NOAA 1 x UQ 1 x Biopixel 2 x TO's 1 x DNRM 1 x volunteer 1 x Sea Turtle Foundation 10 x QPWS	Turtles: hatching survey, nest digging and marking, nesting success, tally count, 500 count, rescue Drone mapping, Seabird survey + RTTB, Topographic survey, Network download	Flying Fish2	
Mar 30 - Apr 10	12	8		1 x Volunteer 2 x AUT 2 x TO's 1 x GBRMPA	Hatchling survey Drone trials, Nest digging, Seabird survey + RTTB, Remote sensing download Inundation manning	Reef Ranger	
Totals	51	36					

Field Trips 2016/17

Date	Field trip days	Days on site Raine	Days on site Moulter	Traditional Owners	Personnel	Activities	Vessel	
July 7-13	7	6		sch4p4(6) Personal information	6 x QPWS 2 x TO's 1 x DNRM 1 x tower restoration TRM 1 x volunteer	fencing tower survey network download topographic survey	Reef Ranger	

Nov 1-13	13	10		10 x QPWS	turtles - nesting success, mortality, nest marking, satellite tagging, tagging, 500 count, total census, rescue, necropsy, nest gas monitoring		
				2 x TO's	Topographic survey,	Reef Ranger	
				2 x JCU	Network download		
				1 x UQ	Seabird survey + RTTB		
				1 x volunteer			
Nov 28 - Dec 7	10	8		9 x QPWS	Turtles – nesting success, mortality, nest marking, tagging, 500 count, total census, rescue, necropsy, nest gas monitoring	Reef Ranger	
				1 x GBRMPA	Topographic survey		
				1 x DNRM	Network download		
				2 x TO's	Seabird survey + RTTB		
				2 x UQ	Drone surveys		
				1 x Biopixel			
				7 x QPWS	Delegates trip		
Dec 7-9	1	1		2 x TO elders	Presentation of RIRP research and management activities on-site	Reef Ranger	
				1 x GBRMPA	Turtles –tagging, rescue, necropsy		
				1 x Threatened Species Commissioner			
				1 x GBRF			
				3 x BHP Billiton			
				1 x JCU			
Dec 9-16	8	2	4	10 x QPWS	Turtles – nesting success, mortality, nest marking, tagging, 500 count, rescue	Reef Ranger	
				2 x TO's	Topographic survey, Network download, Seabird survey + RTTB, satellite install		
				2 x JCU			
				1 x DEE			
				1 x Activ8me			
Jan 27 - Feb 9	13	9		9 x QPWS	Turtles: hatching survey, nest digging and marking, nesting success, tally count, 500 count, rescue	Reef Ranger	cut short by 2 days due to weather
				1 x Qld Museum	Topographic survey, Network download		
				1 x DNRM			
				1 x Volunteer			
				2 x TO's			
				1 x UQ			
				6 x QPWS	Delegates trip		
					Presentation of RIRP research and management activities on-site		
Feb 9-10	1	1		1 x Minister Miles	Turtles –rescue	Reef Ranger	
				1 x Minister assistant			
				2 x TO elders			
				1 x GBRF			
				3 x BHP Billiton			
				1 x Courier Mail			
				2 x ABC news			
Feb 10 - 15	6	2	2	9 x QPWS	Turtles: hatching survey, nest digging and marking, nesting success, tally count, 500 count, rescue	Reef Ranger	
				1 x Qld Museum	Topographic survey, Network download, nest gas monitoring		

FEB 10 - 15	0	2	2	1 x DNRM 1 x JCU 2 x TO's 1 x UQ		Reef Ranger	
April 3-12	10	7		8 x QPWS 1 x Volunteer 2 x JCU 2 x TO's 1 x Biopixel 1 x UQ 1 x NOAA 2 x TO rangers 4 x TO elders 2 x CHP consultants 3 x QPWS 1 x filmmaker 1 x AUT	Turtles: Hatchling survey, nest gas monitoring, rescue, mortality Drone surveys, Nest digging, Seabird survey + RTTB, Remote sensing download, Inundation mapping Cultural Heritage Plan inc filming Seabird survey + RTTB Vegetation surveys fencing inspection Pre-sand movement works Bathymetric surveys from tender	Reef Ranger	
June 27-30 (part trip)	4	3				Charter - Elizabeth Ell	rest of trip into July 2017
Totals	73	49	6				

Field Trips 2017/18

Date	Field trip days	Days on site Raine	Days on site Moulter	Traditional Owners	Personnel	Activities	Vessel	
July 1-July 6 (part trip)	6				2 x TO rangers 4 x TO elders 2 x CHP consultants 3 x QPWS 1 x filmmaker 1 x AUT	fencing tower survey network download topographic survey	Charter - Elizabeth Ell	rest of trip from June
Aug 18 - Aug 29	12					sand re-profiling bird surveys fencing tower works	Reef Ranger	Charter vessel also for 3 pax for part of trip
Aug 29 - Sept 7	9					sand re-profiling bird surveys fencing tower works	Reef Ranger	
Oct 29 - Nov 8	11					turtles - nesting success, mortality, nest marking, satellite tagging, tagging, 500 count, total census, rescue, necropsy, Topographic survey, Network download	Reef Ranger	

Nov 28 - Dec 11	14				Turtles – nesting success, mortality, nest marking, tagging, 500 count, total census, rescue, necropsy Topographic survey Network download Seabird survey + RTTB Drone surveys Delegates trip Presentation of RIRP research and management activities on-site Turtles –rescue	Reef Ranger	
Dec 11 - Dec 14	2					Reef Ranger	
Dec 14- Dec 21	8				Turtles – nesting success, mortality, nest marking, tagging, Topographic survey, Network download, Seabird survey + RTTB - Moulter focus	Reef Ranger	
Feb 7- Feb 14	8			sch4p4(6) Personal information	Turtles: hatchling survey, nest digging and marking, nesting success, tally count, 500 count, rescue Topographic survey, Network download	Reef Ranger	
Feb 23 - Mar					Moulter and Raine focusTurtles: hatchling survey, nest digging and marking, nesting success, tally count, 500 count, rescue Topographic survey, Network download	Charter - Argo	
Apr 17 - Apr 24	8				Turtles: hatchling survey, nest digging, tally count, rescue Topographic survey, Network download, Seabird survey and drone survey	Reef Ranger	
Jun 21 - Jun 30	9			2 x TO rangers	fencing tower survey network download	Reef Ranger	Trip goes into July 2018

						topographic survey		2018
Totals	87	0	0					

Field Trips 2018/19

Date	Field trip days	Days on site Raine	Days on site Moulter	Traditional Owners	Personnel	Activities	Vessel	
July 1- Jul 2	2			sch4p4(6) Personal information	2 x TO rangers	fencing tower survey network download topographic survey	Reef Ranger	rest of trip from June
Oct 16 - Oct 26	10				2 x TO rangers	fencing tower survey network download topographic survey	Reef Ranger	
Oct 26 - Nov 4	9				2 x TO rangers	fencing tower survey network download topographic survey	Reef Ranger	

Date : 21/08/2019 10:01:41 AM

From : "HESS Lee"

To : "HURREN Kerry-Anne" , "DUNSTAN Andrew" , "BRADSHAW Steven" , "TEALEBROWNE Callum" , "COOK Tayce"

Cc : "ARMSTRONG Warrick" , "CENTURINO Patrick" , "WINN Nathan" , "RALPH Tom" , "SCHAPER Dan"

Subject : RE: RPA Terms Of Reference - Northern Region

Attachment : image002.png;image004.png;image001.png;

Thanks Kerry Anne

As discussed I am supportive of joining the Northern region Terrestrial drone user group and sharing their ideas and policy discussions, SOP's etc. I assume mostly they will be Cairns based or dial in meetings but if regional meetings proposed eg. Lakefield / Ingham or the like, then I would think the group should only request to send one person along (bearing in mind most Travel generally approved by the PR particularly if involving flights and accommodation).

I would also suggest that if a need has been identified then one of our group members should get the MS Word copy of the Very small RPA and craft up a version suited to the matrice (an interested person or draw short straws?). A quick phone around should identify if some other person or region has already done this though. Steve might be able to find out through the Statewide group meetings ? Anyway I am sure most would be cut and paste and then the complex bits may need some work. Once we have a suitable draft with some consultation, I would recommend sending through to the RD or ED ? for authorisation / sign off.

Thanks Lee



Lee Hess

Senior Ranger Far North GBR

Great Barrier Reef & Marine Parks Region / QPWS and Partnerships

Department of Environment and Science

Ph. 07 4047 9602

Mob: (6) Personal info

PO Box 685, Bungalow, Qld. 4870

I acknowledge the Traditional Owners on whose land and sea country I work and live. I pay my respects to all elders past, present and emerging.

From: HURREN Kerry-Anne

Sent: Tuesday, 13 August 2019 4:02 PM

To: DUNSTAN Andrew; BRADSHAW Steven; TEALEBROWNE Callum; COOK Tayce; HESS Lee

Cc: ARMSTRONG Warrick; CENTURINO Patrick; WINN Nathan; RALPH Tom

Subject: FW: RPA Terms Of Reference - Northern Region

Hi All,

I have attached the Terms of Reference developed by the Northern Region Drone User Group (NRDUG). The document appears to outline similar ideas the FNMU Drone User Group have discussed. My suggestion is that we apply to 'formally' join their user group (some of us are just on their mailing list as observers) at least whilst the GBR wide drone coordination, policy and plan document is under development? I'm happy to co-ordinate this for the group if that's something you all want?

One thing that really stands out to me is the Workshops the NRDUG have been supported to hold. I'd like to work more formally with the NRDUG to be involved in their workshops. Do you think this is something that would be supported by our management Lee? I suppose it depends on where they are held but I think we could get a lot out of the workshops.

Also, just a reminder about the SOP that exists for the use of RPA's in Marine Parks that has been signed by Damien Head (attached). A slight problem with this is it only applies to very small RPA's (100g - <2kg) which excludes the Matrice. As far as I can tell though, the main content that applies to operating an RPA >2kg - 25kg is covered which is having 5 hours flight time before flying the RPA unsupervised.

Cheers,
K-A



Kerry-Anne Hurren

Ranger (Natural Resource Management)

Great Barrier Reef & Marine Parks | QPWS and Partnerships

Department of Environment & Science

M (6) Personal info | E Kerry-Anne.Hurren@des.qld.gov.au

100 - 106 Tingira Street PORTSMITH QLD 4870

Po Box 685 BUNGALOW QLD 4870

I acknowledge the Traditional Owners on whose land and sea country I work and live. I pay my respects to all elders past, present and future.

From: DOLLERY Colin <Colin.Dollery@des.qld.gov.au>

Sent: Tuesday, 13 August 2019 8:56 AM
To: Northern Region Drone Users
Subject: Terms Of Reference

Morning All,

The Terms of Reference for the Northern Region drone Users Group has been approved and has been loaded onto the Drone share point page. Please have a look when you have time as this sets the framework for the group. RMT is scheduled for the end of August and the Drone Users Group will be discussed. I am proposing that following this, discussions be had about the possible future drome workshop. Anyhow let me know if you have any comments.

cheers

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RTI Act 2009

Date : 27/03/2019 11:20:49 AM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew" , "ROBERTSON Katharine"
Subject : RE: sand trip
Attachment : image001.png;image002.png;
Thanks – will allow you in the mix



Tina Alderson
Project Manager
Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region
QPWS & Partnerships
Department of Environment and Science

P (6) Personal info
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
www.npsr.qld.gov.au/raineisland

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 11:19 AM
To: ALDERSON Tina; ROBERTSON Katharine
Subject: RE: sand trip

Sounds like a good plan to me, will run much easier with Reef Ranger I think. Should be enough people and hope that you have me as ranger/builder to make sure the container network setup is incorporated into the plan. Also to get filming setup for time-lapse, drone flights for topography and birds and general filming done throughout for main bits – I'd call me a different job and have three builders? Good luck with the TO rangers.

The site for the containers was selected as a large open flat area with easy access to the moorings and minimal seabird nesting – no colonies. Most importantly it was also the site where Col and his team camped for at least two extended periods during turtle seasons. Site was not excavated but just cleared from vegetation and containers positioned on flat ground. No artifacts were found. Only digging was for satellite dish post and the four camera posts (one at base station and three around the island). Sand was piled up against the cliff for a road/ramp access after checking there were no cliff nesting birds ie. RTTB or Herald Petrels.

Hope this helps

Cheers

Andy

From: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Sent: Wednesday, 27 March 2019 10:45 AM
To: DUNSTAN Andrew; ROBERTSON Katharine
Subject: sand trip

Trying not to have to do a charter boat for the Raine trip
So how does this sound

Skipper
Eng
Coxswain/ranger
Site supervisor – This was Dan last time – think we still need to have a dedicated 'site supervisor' this time as well
CH Advisor
CH Advisor
Geomorph
Contractor
Contractor
Contractor
Contractor
Contractor
Ranger/builder
Ranger/builder
Ranger/builder
Ranger/builder

So this is prob no TO rangers – which I will have to work through – unless it's a builder one !
Have a phone hook up with Paddy and Co from CH on Friday to discuss containers – think they want an archaeologist on board !! going to say no unless they are also a builder !

Andy – can you provide me a quick run down as to what happened when the containers were first put in – CH? How was the location picked?

Anything found ? etc etc

19-211

Thoughts about the above?
Tina



Tina Alderson

Project Manager

Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region

QPWS & Partnerships

Department of Environment and Science

P4(6) Personal inform

100-106 Tingira St, Cairns, QLD 4870

PO Box 685, Bungalow, QLD 4870

www.npsr.qld.gov.au/raineisland

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RTI Act 2009

Date : 22/10/2019 3:55:29 PM

From : 4p4(6) Personal informa

To : "DUNSTAN Andrew"

Subject : RE: Seabird Analysis Update

Attachment : image001.png;

G day Andy,

I wanted to let you know a few things in regard to my efforts on the seabird image analysis project.

Firstly, I want to let you know that Boeing recently discontinued the commercial arm of the image analysis project (just over a month ago).

While this was disappointing, it had the benefit of allowing me to resume working on it as a side project, however - I will be candid and say I've been slack in my personal execution for a number of reasons.

sch4p4(6) Personal information

I can't say with any certainty how much spare time I'll have in this new role, but I would like to slowly potter along with this as a side project, if that still has any benefit to you.

Cheers,

4(6) Personal inform

P.S. In regards to my previous email I found a way of extracting the imagery from the GIS server without requiring an API, so no need to action that request.

From: 4(6) Personal inform

Sent: Wednesday, 26 June 2019 10:17 AM

To: 'DUNSTAN Andrew' <Andrew.Dunstan@des.qld.gov.au>

Subject: Seabird Analysis Update

G day Andy,

How have you been? It's been a while since we last talked and I wanted to touch base.

An update from my side of the fence:

- Unfortunately, the commercial side to the AI and automated image analysis has started to decline, re-orienting Boeing's focus towards defence applications. This has made it increasingly challenging to maintain the organisations interest in the RIRP.
- In light of this organisational change of vision, I have started to work on processing the previously provided imagery in my spare time (outside of my 2019 semester 1 study), using open source tools and with the consideration that I would be happy to offer up the IP to Boeing to avoid a COI.
- As previously discussed, my sole objective here is to provide you with an initial demonstrator to prove out the concept and an eta is difficult to establish.
- If possible, would you be able to put me in contact with a tech focal of the data providing group (from the GIS team), so that I can access the ESRA API to enable me to pull down the imagery.

I'd also like to know if you've managed to repair the fallen UAV and if you're still conducting the surveys?

sch4p4(6) Personal information

and I will be sending more frequent updates on my progress moving forward, to better keep you in the loop.

Cheers,

4p4(6) Personal informat

Software Engineer

Phantom Works - International

P: +61 7 3306 3628 | M: 4p4(6) Personal informati

E: 4p4(6) Personal informa.com | GPO Box 767, Brisbane QLD 4001



PLEASE CONSIDER THE ENVIRONMENT BEFORE YOU PRINT THIS E-MAIL



**BOEING
AUSTRALIA
PARTNERSHIP**

**90
YEARS**

Date : 13/05/2019 9:13:18 AM

From : "DUNSTAN Andrew"

To : "DUTOIT Julie" , "ROBERTSON Katharine"

Subject : RE: Seabird monitoring

Thanks Julie, I did think they were 20m and yes, I was trying to work with getting the drone positioned correctly over the post but it was an issue with this flight gps accuracy. Will work with Marshall and let you know

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>

Sent: Friday, 10 May 2019 11:32 AM

To: DUNSTAN Andrew

Subject: RE: Seabird monitoring

Hi Andy – just confirming that the acoustics are 20m diameter circles (I was thinking radius when I said 10m)!

Photos to 10m accuracy aren't great for the acoustic counts... and that explains why some of the photos have the acoustic stations near the edge rather than the centre of the image... so these ones won't be able to be used. But those rectified images to 5cm accuracy sound great! I'll hold off on starting any counts until I hear back from you re what Marshall advises.

Regards,
Julie Dutoit
4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Thursday, 9 May 2019 3:59 PM

To: DUTOIT Julie; ROBERTSON Katharine; ALDERSON Tina

Subject: RE: Seabird monitoring

That's correct for the drone quality and the spark is my personal drone which is even lower quality than the Mavic. Also good for topo but not for birds

Will go through and identify images and yes we can ID the logger location and put a 20m diameter circle (?) around these. I'll work with Marshall to see if it may be easier and quicker to do a program which pulls out of the orthomosaic these exact images required and will therefore negate the need for a separate flight for acoustics. This would also give us more survey dates. Is also hard to identify posts in the fully vege April 2019 version at some locations so this would also be an advantage here. The actual photos are only within about 10m accuracy by the GPS from the drone in their file information data, however when rectified with the ground control points in the orthomosaic this comes down to about 5cm accuracy so should work well. We have the dGPS locations of posts so can work from that. We may end up with a 20m sided square rather than 20m diameter circle as a practical option but can easily overlay a circle within the image for analysis.

Hope this helps

Cheers

Andy

From: DUTOIT Julie <Julie.Dutoit@des.qld.gov.au>

Sent: Thursday, 9 May 2019 3:02 PM

To: DUNSTAN Andrew

Subject: RE: Seabird monitoring

Hi Andy – Thanks for updating my summary doc.

I had a quick chat with Katharine re which drones where which and which would have good enough quality images.

She thought:

- **Matrice** – Cairns NRM large drone – highest quality images
- **Inspire** – Biopixel drone – Katharine thinks this is good enough quality for bird counts – but not as good as Matrice
- **Mavic** – Cairns NRM small drone – not good enough images for bird counts (1/6 the quality image of the Matrice)

Does that sound right?

Whose drone is the 'Spark' and where does it sit in terms of image quality (looks OK in the Oct 2018 photos you directed me to)

To use the photos of the acoustic circles we need to know which is which and where the 10m circumference is.

Can you label the photos Acoustic 1 to 14 for the beach units and 15 to 25 for the inland units?

I'm struggling to find the centre point (the acoustic unit) in most of the photos and can only see 1 or 2 yellow boundary markers in photos.

Is there an accurate way (using GPS?) to mark these circles on the photos?

If not we might not be able to use them and will need to mark the circles out much more clearly for future count work.

Regards,
Julie Dutoit
4047 9604

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Thursday, 9 May 2019 2:00 PM
19-211

To: DUTOIT Julie; ROBERTSON Katharine; ALDERSON Tina
Subject: FW: Seabird monitoring

Hi Julie

Here is the spreadsheet for seabird surveys with drone dates included and model of drone used. Please note that we should be able to retrieve acoustic logger images on dates where only the full island survey was conducted if necessary.

The folders with images for acoustic station surveys are in Cairns3/GBRR/Raine Island Recovery Project/Acoustic station images

Hope this helps

Cheers

Andy

From: DUNSTAN Andrew
Sent: Wednesday, 8 May 2019 12:25 PM
To: DUTOIT Julie
Subject: Seabird monitoring

Hi Julie

Good to get onto this now in an evolving but structured way. We now have two final year thesis students at QUT (one month into project), one Masters student at DNRME/QUT (June commencement) and one research assistant at QUT (about to start) on this series of tasks. Final year thesis project is to optimise images from still cameras and prepare timelapse imagery for turtle counts and behaviour as well as night heron counts. This can then at a later stage develop other seabird counts if required from these 4 survey sectors which cover 80m of beach length. It will also help to optimise images from drone footage for the acoustic counts.

Masters student (6) Personal information will be working on the automated image analysis of seabird counts by drone. This will follow on from the bid ID work you and Andrew did for key species. Each ID'd bird will be chopped out from the image in a 'bounding box' of certain pixel size and used for neural network machine learning training by Person A. She will then progress this to automated counts to compare with manual photographic counts and ground observer counts. Should be good progress by June 2020 I would hope.

Research assistant is being paid by Raine funds to prepare the 'bounding boxed' images for this process and hopefully have them ready for Person A to get started immediately without so much grunt work.

We have been undertaking to do drone surveys for topo, total bird counts and acoustic counts as often as possible and in conjunction with ground observer counts. We will continue to do this – the recent hiccups have been the drone crash in October and ugly weather in Feb negating these options. I did a full survey in December with the Mavic drone and assessment of the images show it to be about 1/6 resolution and quality of the Matrice 200 drone and probably not ok for seabird census (so obvious we may not even bother with a formal scientific comparison).

We are storing all footage with DNRME Spatial Image section who are adding metadata and archiving and then making this available over their cloud based system. This should work really well, what has been done so far works well. There appears to be significant lag in capacity to process drone data to orthomosaic imagery for further analysis so we'll see how that goes.

In summary:

- I'll double check data and complete the survey for you
- No automated counts yet
- I'll chase up the drone images for acoustic counts now and get them to you.

Cheers

Andy

As discussed Graham wants Andrew and I to start looking into if we are getting correlations between counts done on Raine via:

- Ground counts by staff
- Manual counts from drone footage
- Automated counts from the drone footage
- Recordings from the acoustics

I've put the attached together to start summarising where we are at with this project.
Can you help me by:

- indicating on the attached which surveys correspond with drone footage
- send me any automated counts that may have been obtained so far from drone footage
- send me drone footage from trips where we did ground counts so that I can start doing manual counts from the footage.

NB: I started with June 2017 as this was first acoustic count we have on record... is this also when we started the drone work or was it earlier?

Published on DES Disclosure Log
RTI Act 2009

Date : 21/08/2018 8:54:41 AM
From : "KRAUS Kylie"
To : "DUNSTAN Andrew" , "JACOBS Nigel"
Subject : RE: Seeking feedback by 22 August - World of Drones
Attachment : image001.png;
That's ok Andy-I can provide Nigel's comments to DPC.



Kylie Kraus
Principal Project Officer
Office of the Queensland Chief Scientist
Department of Environment and Science
P (07) 3215 3737 M (6) Personal info
Level 24, 111 George Street, BRISBANE QLD 4000
Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Work days: Tues - Fri

From: DUNSTAN Andrew
Sent: Monday, 20 August 2018 12:24 PM
To: KRAUS Kylie; JACOBS Nigel
Subject: RE: Seeking feedback by 22 August - World of Drones

Hi Kylie, just caught up with Nigel in the lift and he said his feedback, which I agree with, may be enough for you. Happy to add more if you like but just let me know please.

Cheers

Andy

From: KRAUS Kylie
Sent: Tuesday, 14 August 2018 9:39 AM
To: JACOBS Nigel; DUNSTAN Andrew
Subject: Seeking feedback by 22 August - World of Drones

Hi Nigel and Andy

Thank you for your assistance with the 2018 World of Drones Congress held last week. The event attracted more than 1100 attendees across all events and activities.

DPC is expecting a final report from the organisers in mid-September, and has asked for views from the sponsorship group, around the following topics:

- Alignment with your priorities
- Comments on the WoDC program
- Agency social media reach
- Feedback on the exhibition space (including Queensland Government presence)
- Anecdotal feedback (pros/cons)
- Sponsorship management and processes
- Recommendations for future engagement.

To help me respond to this request, I am very interested to hear your thoughts on the sponsorship of World of Drones Congress 2018.

Could you please drop me a few bullet points around the topics you feel you can answer - I would appreciate it if you can provide this feedback by **Wednesday 22 August 2018**.

Thanks again for your help and support.

Regards
Kylie



Kylie Kraus
Principal Project Officer
Office of the Queensland Chief Scientist
Department of Environment and Science
P (07) 3215 3737 M (6) Personal info
Level 24, 111 George Street, BRISBANE QLD 4000
Customers first | Ideas into action | Unleash potential | Be courageous | Empower people

Work days: Tues - Fri
19-211

Date : 12/11/2018 3:38:35 PM
From : "DSOUZA Marshall"
To : "DUNSTAN Andrew"
Subject : RE: Spark Orthoimage
Attachment : image001.png;

Yep, QGIS is a great open source program for GIS work but if you can access the ArcGIS suite (either arcmap or arcpro) that would also be good to have as it's sometimes easier to use if you're editing or doing any analysis.

Cheers, Marshall

From: DUNSTAN Andrew
Sent: Monday, 12 November 2018 2:41 PM
To: DSOUZA Marshall
Subject: RE: Spark Orthoimage

Thanks Marshall. Think this was the image from the 100m flights so the next one on 31st at 75m should be even better I hope.

Those tasks sound ideal and imagine QGIS is the best one for me to do general GIS work with data/layers that you send through these days?

Cheers

Andy

From: DSOUZA Marshall
Sent: Monday, 12 November 2018 1:40 PM
To: DUNSTAN Andrew
Subject: Spark Orthoimage

Hi Andy,

The spark orthoimage can be found here:

<\\LANDS\Data\DNRM\Shared Transfer\Brisbane\Raine\201810 DroneImagery>

To view it, you can install QGIS from the software centre, open the program and click and drag the tif file to the main screen.

Link to DEMS sent to Karen:

https://itp.qld-my.sharepoint.com/:f:/g/personal/marshall_dsouza_dnrme_qld_gov_au/Er4WAxd6atDI7HG0wD6cEUBWsm3aa5JTRNYRX7Isfmm9Q?e=yX0UOH

Regarding programs for the super laptop, are these the tasks you will be using the laptop for? And if there's any more can you let me know:

- Processing survey data(Trimble data)
- Processing drone imagery
 - o Orthoimagery
 - o 3d models

Cheers,



Marshall D'Souza
Graduate Spatial Information Officer
Land and Spatial Information | Survey Integration
Department of Natural Resources, Mines and Energy

P: 3330 4346
E: marshall.dsouza@dnrme.qld.gov.au
A: 275 George St, Brisbane CBD, QLD, 4000

Date : 20/03/2019 8:55:21 AM

From : "DUNSTAN Andrew"

To : sch4p4(6) Personal information , "ALDERSON Tina"

Subject : RE: Student meeting

Attachment : image001.png;

That sounds good for next Friday Matt, just let me know what time works, and reassuring to have at least one good one! DO we have or need and NDA Tina?

Cheers

Andy

From: sch4p4(6) Personal information @qut.edu.au>

Sent: Tuesday, 19 March 2019 8:40 PM

To: DUNSTAN Andrew

Subject: RE: Student meeting

Hey Andy,

Sorry was in Townsville today.

I have had a meeting with three of the four. At least one really good one. The good one is coming tomorrow to get some data. Can I give them some of the drone footage you gave me? Do you want them to sign an NDA?

sch4p4(6) Personal information but I am trying to hold student meetings Friday mornings. Maybe if you are around we can arrange for next Friday to meet all of them?

) Personal in

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>

Sent: Tuesday, 19 March 2019 11:38 AM

To: sch4p4(6) Personal information @qut.edu.au>

Subject: Student meeting

Hi Matt, just checking if you're up for a meeting with the students and RA sometime soon?

Cheers

Andy



Dr Andy Dunstan

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P (6) Personal info

Level 5, 400 George St, Brisbane, QLD 4000

www.npsr.qld.gov.au/raineisland

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Date : 14/11/2018 11:55:27 AM

From : "ALDERSON Tina"

To : "DUNSTAN Andrew", sch4p4(6) Personal information

Subject : RE: Student projects on automating image analysis

Attachment : image001.png;

Sounds like a plan – will wait to see the figures and then comment but it is probably possible !

Tina

From: DUNSTAN Andrew

Sent: Wednesday, 14 November 2018 11:52 AM

To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>; sch4p4(6) Personal information qut.edu.au>

Subject: Student projects on automating image analysis

Thanks for an excellent meeting and what I think will be good plans for getting this work moving well. Personal

Tina, we talked this morning about getting students on board to do a range of smallish projects to completion for turtle work and a more comprehensive project for seabird counts.

Projects are:

- Night turtle still image management – identifying and sorting required images from the rubbish and creating an easy access filing system
- Turtle counts – accurate 9pm count each night (to compare and integrate with tally count data) and accurate full night counts
- Turtle nesting success – identifying turtles which nest successfully and quantifying nesting success to compare with manual methods
- Turtle mortality from heat exhaustion – identifying the paths of turtles back to the ocean post-nesting/nesting attempts and time taken.

These turtle projects will allow comparison of the above factors between reprofiled and unmodified beach areas.

- Implement machine learning for seabird species identification and automated counts – 8 week intensive casual research assistant position to kick start this. Ideal timing immediately as it's the end of uni year.
- May then continue into a Master's position to allow the drone counts to be refined and developed.

This plan should produce some early outcomes for actual automated counting and for this to be published. Comparison with manual counts and then over different seasonal periods can then be undertaken over a longer term and ensure this drone method develops and improves and is able to be compared with historical observer counts.

Personal is putting together a costing for the Research assistant and Masters positions now. The turtle projects should be short no cost/minimal cost projects. Personal. Hope this can fit within the budget Tina?

Cheers

Andy



Dr Andy Dunstan

Senior Conservation Officer

Raine Island Recovery Project | Great Barrier Reef and Marine Parks Region

Queensland Parks and Wildlife Service

Department of Environment and Science

P (6) Personal info

Level 5, 400 George St, Brisbane, QLD 4000

www.npsr.qld.gov.au/raineisland

Date : 12/11/2019 10:03:43 AM
From : "COFFEE Owen"
To : "ROBERTSON Katharine" , "DUNSTAN Andrew"
Subject : RE: Trip results
Attachment : image001.png;image003.png;
Tally count for 2/11/19 – 1231, 5/11/19 – 1950.

From: ROBERTSON Katharine
Sent: Monday, 11 November 2019 4:10 PM
To: COFFEE Owen; DUNSTAN Andrew
Subject: Trip results

Hi Owen and Andy,

Thinking we should send an update email to the governance groups with results from the first trip?

Owen - since you took the iPads – can I confirm the tally counts for the night 2/11/19 (12??) and the night of the 5/11/19 (1950?)

Andy – happy to say around 30,000 turtles around the island counted by the drone? Was going to include the drone photo too

Thanks



Katharine Robertson
Senior Conservation Officer
Raine Island Recovery Project | Great Barrier Reef & Marine Parks Region
Queensland Parks & Wildlife Service & Partnerships
Department of Environment and Science

P (6) Personal information
100-106 Tingira St, Cairns, QLD 4870
PO Box 685, Bungalow, QLD 4870
<https://parks.des.qld.gov.au/raineisland/>

Date : 2/10/2019 2:29:15 PM
From : "DUNSTAN Andrew"
To : "MUNRO Bec (GBR and Marine Parks, DES)"
Subject : RE: UAV Wholesale: Invoice # 100013070 for Order # 120013745
Attachment : image001.png;image003.jpg;image005.png;image006.jpg;

From 1002657 thanks Bec

From: MUNRO Bec (GBR and Marine Parks, DES) <Bec.Munro@des.qld.gov.au>
Sent: Wednesday, 2 October 2019 12:09 PM
To: DUNSTAN Andrew
Subject: RE: UAV Wholesale: Invoice # 100013070 for Order # 120013745

Hi Andy

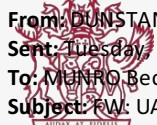
What cost centre are we purchasing this from?

Bec

Bec Munro
Administration Officer
Great Barrier Reef & Marine Parks Region | QPWS & Partnerships
Department of Environment and Science

P 07 4722 5325 | VoIP 20325
Level 10 | 445 Flinders St Townsville 4810
PO Box 5597 Townsville 4810
E-mail: QPWSgbrmciGBRMPR.Corro@des.qld.gov.au

From: DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Sent: Tuesday, 1 October 2019 10:05 AM
To: MUNRO Bec (GBR and Marine Parks, DES); ALDERSON Tina
Subject: FW: UAV Wholesale: Invoice # 100013070 for Order # 120013745


Queensland
Government

If you could please raise an order for this drone as per the quote that would be great thanks. Items are in stock and can be dispatched promptly and this supplier is the same as previous drone orders and has provided reliable supply and after sales service.

Cheers
Andy

From: Sales <info@uavwholesale.com.au>
Sent: Wednesday, 25 September 2019 12:25 PM
To: DUNSTAN Andrew
Subject: UAV Wholesale: Invoice # 100013070 for Order # 120013745



ABN 90 166 059 954

Hello, Andy Dunstan

Thank you for your order from UAVwholesale. You can check the status of your order by [logging into your account](#). If you have any questions about your order please contact us at info@uavwholesale.com.au or call us at (03) 51433451 Monday - Friday, 8am - 5pm PST.

TAX INVOICE #100013070 for Order #120013745
DATE: 19 Sep 2019 9:30:23 am

Billing Information:

Andy Dunstan
Department of Environmental Science
100-106 Tingara St
Cairns , QLD , 4870
Australia

Payment Method:

Bank Transfer Payment
Please find account details for payment:
Acct Name: UAVwholesale
Acct Bank: ANZ
Acct BSB: 013795

T: 0409 650271 Billing Information:		Acct No: 101508244 Payment Method:	
Shipping Information: Andy Dunstan Department of Environmental Science 100-106 Tingara St Cairns , QLD , 4870 Australia T: 0409 650271		Shipping Method: Shipping Via TOLL IPEC	

Item	SKU	Qty	Subtotal
DJI Mavic 2 Enterprise Fly More Kit	mvc2-entflymore	1	
Mavic 2 Enterprise Dual	mvc2-enterprise	1	
Subtotal			\$4,800.40
Grand Total (Excl. Tax)			\$4,364.00
GST			\$436.40
Grand Total (Incl. Tax)			\$4,800.40

Thank you again, UAV Wholesale			
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Date : 15/03/2019 9:18:11 AM

From : "DUNSTAN Andrew"

To : "BRADSHAW Steven"

Cc : "HURREN Kerry-Anne"

Subject : RE: URGENT: DES Drones Register

Attachment : Copy of DES Drones Register- AD edit.xlsx;image003.png;image004.png;image005.png;image007.png;

Here you go Steve. Hope that's enough info

From: BRADSHAW Steven

Sent: Thursday, 14 March 2019 4:17 PM

To: DUNSTAN Andrew

Cc: HURREN Kerry-Anne

Subject: FW: URGENT: DES Drones Register

Hi Andy,

Can you please complete the spreadsheet for the matrice please? You would be in the best position to know what we have in terms of accessories etc.

Thanks

Steve



Steven Bradshaw

Ranger in Charge (Vessels)

Great Barrier Reef and Marine Parks Region | QPWS and Partnerships
Department of Environment and Science

P 07 4047 9616

(6) Personal info

100-106 Tingira Street, Portsmith, Cairns, Qld, 4870
PO Box 685, Bungalow, Qld, 4870

E: Steven.bradshaw@des.qld.gov.au W: www.des.qld.gov.au

From: ROTH Jonathan <Jonathan.Roth@des.qld.gov.au>

Sent: Thursday, 14 March 2019 3:05 PM

To: Northern Region Drone Users

Subject: URGENT: DES Drones Register

Hello Northern Drone Users,

Apologies for the rush, but could all of you please check this document and **update it by COB Monday 18th March**. It should only take a few minutes to check and update your details, as necessary.

***PLEASE NOTE: this spreadsheet contains several tabs. Check & update your aircraft details on the "Drones Register" tab (and add any additional aircraft to the register if you've purchased one recently), then add yourself to the "Drone Operators" tab, if you're not already listed there.

Once completed, forward your updated Drone Register Spreadsheets to me: jonathan.roth@des.qld.gov.au and I'll compile the edits to forward them on.

Once again, apologies for the urgency - and thanks very much for your cooperation!



Jonathan Roth

Ranger

Technical Support | Northern Region

Department of Environment and Science

P 07 4222 5388

L2, William McCormack Pl II, 5B Sheridan Street, Cairns
PO Box 2066, Cairns QLD 4870

Division	Unit	Purpose of Drone Use	RePL Requirement
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Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity
Science and Technology	land surfaces sciences	hexacopter	DJI	HEXACOPTER	M600PRO	M80DFG23030175	Robin mx gimbal,	15kg	5kg	Sony A7r ii, micasense altum, corning shark	SD Cards
Environmental Services and Regulation	Waste and Recovery	Hexacopter	DJI	DJI	Matrice 600 Pro	NJN03408	Gimbal	15.5kg	5.5 - 6 kg	Zenmuse Z30	SD Card
Environmental Services and Regulation	Waste and Recovery	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03413	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Environmental Services and Regulation	Energy, Extractive and South West QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03411	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Environmental Services and Regulation	Minerals and North QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03410	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Environmental Services and Regulation	Coal and Central QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03412	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Environmental Services and Regulation	Investigations, Development and South East QLD Compliance	Quad-copter	DJI	DJI	Phantom 4 RTK	NJN03409	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Wildlife and Threatened Species Operations	Northern Operations	Quad-copter	DJI	DJI	Phantom 4 Pro V2	NJA37100	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Wildlife and Threatened Species Operations	Northern Operations	Quad-copter	DJI	DJI	Phantom 4 Pro V2	NJA37200	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
Wildlife and Threatened Species Operations	Northern Operations	Quad-copter	DJI	DJI	Phantom 4 Pro	NJA37300	Nil	1391 grams (1.391kg)	Nil	20 megapixel camera	SD Card
QPWS and Partnerships	Southern Wildlife	Quad-copter	DJI	DJI	Phantom 4 Pro V2.0	NJA37800	Nil	1375 grams (1.375kg)	Nil	20 megapixel camera	Micro SD Card

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity
QPWS and Partnerships	Great Barrier Reef Marine Region, Hervey Bay	Quad-copter	DJI	Phantom 4	Phantom 4	48163285	1/2.3" CMOS Effective pixels:12.4 M	1400g	Nil	1/2.3" CMOS Effective pixels:12.4 M	Micro SD Card
QPWS and Partnerships	Great Barrier Reef Marine Region, Moreton Bay	Quad-copter	DJI	Phantom 4	Phantom 4	48163062	1/2.3" CMOS Effective pixels:12.4 M	1400g	Nil	1/2.3" CMOS Effective pixels:12.4 M	Micro SD Card
QPWS and Partnerships	Northern Region - Pest Mgmt Team	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	0AXDE1H0A31997	Camera is standard as purchased.	1388g	Nil	Camera is standard as purchased.	Micro SD Card
QPWS and Partnerships	Northern Region - Cooktown Mgmt Unit	Quad-copter	DJI	DJI4 Pro Plus Drone	DJI4 Pro Plus Drone	OAXDE1AOA31441	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card
QPWS and Partnerships	Northern Region - Coen Mgmt Unit	Quad-copter	DJI	DJI4 Pro Plus Drone	DJI4 Pro Plus Drone	OAXDE1BOA33170	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card
QPWS and Partnerships	Northern Region - Mossman Mgmt Unit	Quad-copter	DJI	DJI4 Pro Plus Drone	DJI4 Pro Plus Drone	OAXDE1BOA30183	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity
QPWS and Partnerships	Northern Region Innisfail Management Unit	Quad-copter	DJI	Phantom 4	Phantom 5	07DJE160C10385	Standard camera	1400g	Nil	Standard camera	Micro SD Card
QPWS and Partnerships	Northern Region (Fire Management Team)	Quad-copter	DJI	DJI Mavic Pro	DJI Mavic Pro	08QDE4H01200CA	as standard out of box - camera is attached	743g	Nil	as standard out of box - camera is attached	Micro SD Card
QPWS and Partnerships	Northern Region - Mossman Mgmt Unit	Quad-copter	DJI	DJI Mavic Pro	DJI Mavic Pro	08QUE32001011M	Stock Gimbal/Camera	743g	Nil	Stock Gimbal/Camera	Micro SD Card
QPWS and Partnerships	Northern Region - Assets & Safety	Quad-copter	DJI	M1P	M1P	08QDE4J01203LU	as standard out of box - camera is attached	743g	Nil	as standard out of box - camera is attached	Micro SD Card
QPWS and Partnerships	Northern Region - Ingham Mgmt Unit	Quad-copter	DJI	WM330A	WM330A	07DJDVCC11447	Camera is standard as purchased.	1388g	Nil	Camera is standard as purchased.	Micro SD Card
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Phantom 4 (WM330A)	Phantom 4 (WM330A)	unknown	4K, 12.4 megapixel, 1/2.3" CMOS sensor	1400g	Nil	4K, 12.4 megapixel, 1/2.3" CMOS sensor	Micro SD Card

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity
QPWS and Partnerships	Central Region (Mackay Management Unit)	Quad-copter	DJI	MAVIC Pro (M1P)	MAVIC Pro (M1P)	unknown	4K, 12.71 megapixel, 1/2.3" CMOS sensor	750g	Nil	4K, 12.71 megapixel, 1/2.3" CMOS sensor	Micro SD Card
QPWS and Partnerships	Technical Services	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	unknown	4K/30fps, 20 megapixel, (1" CMOS sensor)	1400g	Nil	4K/30fps, 20 megapixel, (1" CMOS sensor)	Micro SD Card
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Spark (MM1A)	Spark (MM1A)	0ASDE7Q1C1000D1	2 - axis gimbal, 12 megapixel	300g	Nil	2 - axis gimbal, 12 megapixel	Micro SD Card
QPWS and Partnerships	Northern Region (Dry Tropics Management Unit)	Quad-copter	DJI	Phantom 4 Pro	Phantom 4 Pro	OAXCE8D0A30375	Stock Gimbal/Camera	1388g	Nil	Stock Gimbal/Camera	Micro SD Card
QPWS and Partnerships	Ecological Assessments unit	Quad-copter	DJI	Phantom 4 Advanced	Phantom 4 Advanced	TBC	Standard camera	1368g	Nil	Standard camera	Micro SD Card
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Mavic Air	Mavic Air	TBC	Standard camera	TBC	Nil	Standard camera	Micro SD Card

Division	Unit	Description of Drone	Manufacturer	Make	Model	Serial No.	Attachments / Peripherals / Extras	Weight	Payload Capacity	Payload Sensors (type and cost)	Storage Capacity
QPWS and Partnerships	Central Region (Fitzroy Management Unit)	Quad-copter	DJI	Matrice 200	Matrice 200	0FZDF4C0P20025	Zenmuse X5S with 17m and 45mm lenses	4.53kg	1.61kg	Zenmuse X5S with 17m and 45mm lenses, approx. \$4000	Micro SD Card

Software Requirements	Location	Maintenance	Link to Image
pix4d, Envi, corning	RSC / ESP	20hr services	https://www.dji.com/au/matrice600-pro
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Gold Coast	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/matrice600-pro
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Gold Coast	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Ipswich	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Cairns	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Rockhampton	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Sunshine Coast	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-rtk
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Cairns	As per Internal Departmental Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Townsville	As per Internal Departmental Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2
DJI Go 4 Oz Runways AVCRM DJI GS Pro	Innisfial	As per Internal Departmental Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro
DJI GO 4	Rockhampton	As per Operations Manual and Operations Procedures Library	https://www.dji.com/au/phantom-4-pro-v2

Software Requirements	Location	Maintenance	Link to Image
DJI GO 4	Hervey Bay MP Office.	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Hervey Bay MP Office.	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Cairns	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Cooktown	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Coen	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Mossman MU.	As per Operations Manual and Operations Procedures Library	

Software Requirements	Location	Maintenance	Link to Image
DJI GO 4	Innisfail	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Cairns	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Mossman MU.	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Cairns	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Ingham	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Byfield	As per Operations Manual and Operations Procedures Library	

Software Requirements	Location	Maintenance	Link to Image
DJI GO 4	Mackay	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Brisbane 400G (Marcus?)	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Rockhampton QPWS C Wing	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Col Pls advise location.	As per Operations Manual and Operations Procedures Library	
DJI GO 4	B Wing Rockhampton.	As per Operations Manual and Operations Procedures Library	
DJI GO 4	Blackdown Tableland National Park	As per Operations Manual and Operations Procedures Library	

Software Requirements	Location	Maintenance	Link to Image
DJI GO 4 and DJI GS Pro	Cairns	As per Operations Manual and Operations Procedures Library	

Published on DES Disclosure Log
RTI Act 2009

Name	Division
Jason Barnetson	science and technology
Grant Fraser	science and technology
Brett Glosko	Environmental Services and Regulation
John Rice	Environmental Services and Regulation
Doug McCallum	Environmental Services and Regulation
Leeanne Lodder	Environmental Services and Regulation
Camille Oliver	Environmental Services and Regulation
Corinna Browne	Wildlife and Threatened Species Operations
Paul Beri	Wildlife and Threatened Species Operations
Matthew Brien	Wildlife and Threatened Species Operations
Adrian Gurra	Wildlife and Threatened Species Operations
Bradley Pinchbeck	Wildlife and Threatened Species Operations
Chris Osborn	Wildlife and Threatened Species Operations
Daniel Guymer	Wildlife and Threatened Species Operations
Jane Burns	Wildlife and Threatened Species Operations
Ren Bone	Wildlife and Threatened Species Operations
Andrew Dunstan	QPWS

Unit	Location
grazing land systems / land surface sciences	ecosystem sciences precinct
grazing land systems / land surface sciences	ecosystem sciences precinct
Waste and Recovery	Gold Coast
Energy, Extractive and South West QLD Compliance	Ipswich
Minerals and North QLD Compliance	Cairns
Coal and Central QLD Compliance	Rockhampton
Investigations, Development and South East QLD Compliance	Sunshine Coast
Northern Wildlife Operations	Cairns
Northern Wildlife Operations	Townsville
Northern Wildlife Operations	Cairns
Northern Wildlife Operations	Townsville
Northern Wildlife Operations	Townsville
Northern Wildlife Operations	Innisfail
Northern Wildlife Operations	Cairns
Northern Wildlife Operations	Mackay
Northern Wildlife Operations	Townsville
Raine Island Recovery Project	Brisbane

Level of Training
RePL, sub 25kg, AROC
RePL, sub 25kg, AROC
RePL 0 - 7kg, 7 - 25 kg, AROC
RePL 0-7kg, AROC
RePL 0-7kg, AROC
RePL 0-7kg, AROC
RePL 0-7kg, AROC
DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
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DES Internal Induction and Type training, in accordance with sub-2kg excluded RPA category requirements. Selected staff members internally trained.
RePL, sub 25kg, AROC

Abbreviation

ARN
AROC
GCP
PPK
ReOC
RePL
RTK
VLOS

Definition

Aviation Reference Number
Aircraft Radio Operators Certificate
Ground Control Point
Post Processed Kinematics
Remotely Piloted Aircraft Operators Certificate
Remote Pilots Licence
Real Time Kinematic
Visual Line of Sight

Published on DES Disclosure Log
RTI Act 2009

Date : 6/12/2018 9:43:20 AM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew"
Subject : RE: Use of Mavic Pro Drone
Attachment : image002.jpg;image004.png;image006.png;image007.png;

Andy

One is showing on this code – 1001482 – do I need to reverse that one back to you ?

Expense Header									
Account Type	 MasterCard	Reference Id	X0000000000000041748						
Expense Group	General	Purchase Date	27-11-2018		Amount	AUD 144.53			
Account Holder	Andrew DUNSTAN	Tax Receipt?	Yes		Date Created	04-12-2018			
Supervisor	Tina ALDERSON	Status	 Waiting Approval						
Purpose	Mavic drone battery	Attach Receipts Number	 Transaction Attached						
Merchant Name	JB HI FI CAIRNS CENT								
Files Attached	1								
Item Details									
Line No		Description							
1		Mavic drone battery							
Expense Type	Currency	Rate	Quantity	Price	Tax Code	Invoice No.	Net	Tax	Gross
P&E <\$5000	AUD	1	1.000	144.530	PG		131.39	13.14	144.53
Company		GL Account		Cost Centre		Internal Order			
2401		530304		1001482					
Totals:							131.39	13.14	144.53
Files Attached									

From: DUNSTAN Andrew
Sent: Wednesday, 5 December 2018 1:01 PM
To: ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Subject: FW: Use of Mavic Pro Drone

Hi Tina, CC done and both these battery purchases put on this code as per KA

Cheers

Andy

From: HURREN Kerry-Anne
Sent: Tuesday, 27 November 2018 9:35 AM
To: DUNSTAN Andrew
Subject: FW: Use of Mavic Pro Drone

Hi Andy,

As discussed, happy for you to purchase 2 more batteries for the Mavic Pro to be costed to 1002626.

Thank you,
K-A



Kerry-Anne Hurren
A/Ranger in Charge (Natural Resource Management)
Great Barrier Reef & Marine Parks | QLD Parks & Wildlife Service
Department of Environment & Science

M (6) Personal info Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

From: HURREN Kerry-Anne
Sent: Monday, 26 November 2018 2:49 PM
To: ROBERTSON Katharine
Cc: ALDERSON Tina; HESS Lee; DUNSTAN Andrew; BILLETT Chris
Subject: Use of Mavic Pro Drone

Hi Katharine,

As discussed, I am happy for the Raine Island team to use the Mavic Pro Drone to complete works at Raine Island given the Matrice is still broken.
19-211 File F Page 446 of 462

Please find attached the User Manual for operation.

Chris, can you please ensure the Mavic Pro is taken off the boat upon your return to Cairns on the 22 Dec.

Thank You,

Kerry-Anne



Kerry-Anne Hurren
A/Ranger in Charge (Natural Resource Management)
Great Barrier Reef & Marine Parks | QLD Parks & Wildlife Service
Department of Environment & Science

(6) Personal info | E Kerry-Anne.Hurren@des.qld.gov.au
100 – 106 Tingira Street PORTSMITH QLD 4870
Po Box 685 BUNGALOW QLD 4870

Date : 6/07/2018 9:52:18 AM
From : "ALDERSON Tina"
To : "DUNSTAN Andrew" , "ROBERTSON Katharine"
Subject : RE: Veg at raine

Good to hear - a couple of pics would be great and a few other drone ones too
Ta
Tina

-----Original Message-----

From: DUNSTAN Andrew
Sent: Friday, 6 July 2018 9:03 AM
To: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; ALDERSON Tina <Tina.Alderson@des.qld.gov.au>
Subject: RE: Veg at raine

Yeah, looking good. Can send through some aerial pics if you need them but best to wait for about 2 weeks until the full island orthomosaic pic is finished if that works?

-----Original Message-----

From: ROBERTSON Katharine
Sent: Friday, 6 July 2018 9:00 AM
To: ALDERSON Tina; DUNSTAN Andrew
Subject: RE: Veg at raine

Lots of veg in the 2017 profiled area - almost the most vegetated dune area on the Island!
Aerial maps best once the drone imagery comes through I also mapped with vegetation line with a GPS while we were there
2014 area now looking much more vegetated

-----Original Message-----

From: ALDERSON Tina
Sent: Thursday, 5 July 2018 12:41 PM
To: ROBERTSON Katharine <Katharine.Robertson@des.qld.gov.au>; DUNSTAN Andrew <Andrew.Dunstan@des.qld.gov.au>
Subject: Veg at raine

Hi how's the sand reprofiling areas going in terms of veg ?
Has the 2017 one come back quicker and can u pick the 2014 area still ? Maybe from aerial shots ?

Sent from my iPhone

Date : 6/11/2019 11:56:26 AM
From : "GLOSKO Brett"
To : "GLOSKO Brett"
Cc : "Drones Working Group DES"
Subject : RePL Qualification Records on the DES Drones Working Group Register
Attachment : image001.png;image003.png;
Hi All,

I hope this finds you well.

I am in the process of reviewing data listed in the DES Drones Working Group register to help inform DES executive around RPAS training requirements and DES policy on the use of RPAS within DES.

You are all listed on the register as holding a Remote Pilot Licence (RePL).

I am seeking your feedback to ensure the register records are accurate.

Action required:

- Please confirm you hold this qualification?
- Please confirm the type and weight category? i.e. multi-rotor / fixed wing, 0-7kg / 7-25kg, etc
- Please confirm if you hold a AROC qualification?
- Please confirm your ARN (which normally is the same reference number as your RePL and AROC number)

My preference is that these details are updated directly within the register through your nominated divisional contact, however if you don't know who this is, you can respond back to me via reply e-mail with this information.

Thank you for your assistance with this task.



Brett Glosko
Program Manager & Chief Remote Pilot
Remotely Piloted Aircraft Systems
Department of Environment and Science

P 07 5626 6840
ARN 1057139
Level 1, APVC Building, 14 Edgewater Court, Robina, Gold Coast QLD 4226
PO Box 4244, Robina QLD 4230

Date : 3/06/2019 12:45:54 PM

From : "TASKER John"

To : "DAVIDSON Wes" , "NOUWENS Luke" , "DUNSTAN Andrew" , "DSOUZA Marshall" , "BULSTRODE Marcus" , "RANDALL Mark" , "GLOSKO Brett"

Cc : "STEWART Andrew.J" , "PAYNE Greg"

Subject : State Imagery - Drone Metadata Form

Attachment : image001.jpg;

Dear All,

As part of ongoing efforts by State Imagery to provide simple data management guidelines and tools for drone imagery across the Queensland Government, I am pleased to release our automated drone metadata form. This form can be accessed through a web browser at the following link:

<https://survey123.arcgis.com/share/42b5d2cc5533403ba069792e155bf27a?portalUrl=https://qportal.information.qld.gov.au/arcgis>

Leveraging Survey123, QPortal (accessed through ITP credentials), and Microsoft Flow, this solution provides a mobile or desktop experience to generate critical imagery metadata for your data capture projects. On submission of the form, you will be emailed a PDF and XML copy of your metadata for storage alongside the imagery.

If you would like further guidance or support to integrate this information into a broader workflow, please get in contact.

Kind regards,



John Tasker

A/Senior Spatial Information Officer

State Imagery | Land & Spatial Information

Department of Natural Resources, Mines and Energy

P: (07) 3330 4311 | E: john.tasker@dnrme.qld.gov.au

275 George Street, Brisbane City QLD 4000

Date : 13/08/2018 12:55:31 PM
From : "KIMLIN Shayne"
To : "DUNSTAN Andrew"
Cc : "CHRISTENSEN Terry" , "NEUMANN Rusty"
Subject : Visit to Moreton Island for drone setup & trials
Attachment : image001.png;image003.png;
Greday Andrew,

Please contact Terry Christensen (Ranger In Charge), or Rusty Neumann, for local advice on accommodation options for your proposed visit to the island to carry out drone trials. As advised on Thursday, you're planning for around the 1st weekend in September and there are 6 people in your group.

The Moreton Island QPWS base phone is: (07) 34087 2710

Terry's mobile :

Rusty's mobile : s4(6) Personal informa

Some area's which may be of interest to survey are around Heath Island, Mirapool and around the Lighthouse.

Regards



Shayne Kimlin
A/Senior Ranger
Moreton & Heritage Parks
Moreton Bay | Coastal and Islands Region
Queensland Parks and Wildlife Service
[Department of Environment and Science](#)
P (07) 3101 2052 | M
34 Trafalgar Street Manly QLD 4179
PO Box 5178 Manly QLD 4179



Your delivery is coming

It's on its way
Delivering to **QLD 4870**

It's on its way

Expect it by **Tuesday 26 Nov 2019***

From **UAVwholesale**

Tracking number **33EQR0004278**

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Date : 29/10/2019 3:24:55 PM
From : "DroneDeploy"
To : "DUNSTAN Andrew"
Subject : Your DroneDeploy 2D Map export for "Raine" is Ready!

Your export for "Raine" is ready for download.

Download

Your exported data can be downloaded for 30 days. For more information on how to leverage your exported data, please see this [support article](#).

Export request details:

- **Export Type:** 2D Map
- **Resolution:** native inches per pixel
- **Map Projection:** Web (Web Mercator/EPSG:3857)
- **File Type:** JPG
- **Single Image?:** True
- **Export ID:** 5db7ccee3f0a200001928ca0

If you are experiencing issues with your export, please contact [Support](#) (support@dronedeploy.com) so we can investigate.

You received this email because you are a member of this project.
DroneDeploy · 1045 Bryant Street · San Francisco, California

Don't want to receive this kind of email from us? [Unsubscribe](#)

JEFFERIS Celia

From: BURKE Steve
Sent: Saturday, 2 February 2019 10:49 AM
To: JEFFERIS Celia
Subject: FW: TAX INVOICE - 419971 from Garricks Camera House
Attachments: TAX INVOICE - 419971 from Garricks Camera House.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Celia

Tax invoice attached for the purchase of the drone.

Thanks for your help.

Regards
Steve

Steve Burke
Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR Queensland Parks and Wildlife Service | GBR & Marine Parks Department of Environment & Science

- (07) 49915162 | 4p4(6) Personal informa | steve.burke@des.qld.gov.au

1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

-----Original Message-----

From: rockhampton@camerahouse.com.au <rockhampton@camerahouse.com.au>
Sent: Friday, 1 February 2019 3:59 PM
To: BURKE Steve
Subject: TAX INVOICE - 419971 from Garricks Camera House

Please find attached TAX INVOICE - 419971 from Garricks Camera House

This email is intended only to be read by the addressee. It is confidential and may contain legally privileged information. You may not copy or deliver this message to anyone without the explicit consent of the sender. If you are not the addressee indicated in this message (or responsible for delivery of the message to such person) you should destroy this message and kindly notify the sender by reply mail. Confidentiality and legal privileges are not waived or lost by reason of mistaken delivery to you. Emails supplied are as found and there is no guarantee that the messages have not been edited after receipt. - Camera House 2019

JEFFERIS Celia

From: LANYON Oliver
Sent: Friday, 14 December 2018 3:27 PM
To: BURKE Steve
Cc: JEFFERIS Celia
Subject: Re: Drone Purchase

Approved
General operating

Oliver Lanyon
Senior Ranger
Capricorn Coast Management Unit

----- Original message -----

From: BURKE Steve <Steve.Burke@des.qld.gov.au>
Date: 14/12/18 14:13 (GMT+10:00)
To: LANYON Oliver <Oliver.Lanyon@des.qld.gov.au>
Subject: Drone Purchase

OI

I have priced some drones that we discussed and I can get one from Camera house in Rockhampton for \$2799.00.

Will this be ok.

Regards
Steve



Steve Burke

Ranger | Great Barrier Reef & Marine Parks Region | Southern GBR
Queensland Parks and Wildlife Service | GBR & Marine Parks
Department of Environment & Science

 (07) 49915162 |  4p4(6) Personal information |  steve.burke@des.qld.gov.au



1s Floor - John Howes Drive Yeppoon QLD 4703
PO Box 770 Yeppoon QLD 4703

Visit us online at www.des.qld.gov.au

Agency*	Company code*	Requisition reference number	Plant	Storage location	Purchasing Group
DES	2401	GBRR181936	2401	Please Specify	Please Specify

Award contract reporting*	Offer type*	Quote/ITO/SOA reference number*
Selective offer process	Quotations	

Section 1: Vendor information

Vendor name	
GARRICKS CAMERA HOUSE	
Vendor number*	Telephone number
6150536	49211479
ABN/ACN	
1 3 6 0 4 2 1 5 6 5 2	
Email address	Contact name
rockhampton@camerahouse.com.au	4p4(6) Personal informa
Address	
Shop 224/225 Stockland 176-331 Yaamba Road, North Rockhampton Q	
Postcode	
4 7 0 1	

Section 2: Requisition officer

Name	
STEVE BURKE	
Business unit	Telephone number
DES / QPWS / GBRMPR / CCMU	4p4(6) Personal informa
Email address	
steve.burke@des.qld.gov.au	
Additional contact person	

Section 3: Instructions

Purchase order (supplier's copy)	Purchase order (receiver's copy)	☐ Multiple invoices expected (This creates a service order PO)	Payment terms (if required)
Send to vendor/supplier	Send to both requisition and procurement		0007
Discount incentive	Delivery date*	Delivery address*	Postcode*
	4/02/2019	John Howes Drive Yeppoon QLD	4 7 0 3

Additional instructions

Please complete Section 6: Order details on page 2.

Section 4: Automated totals (automatically populated from Section 6)

Total value (excluding GST)	Total GST	Total amount (including GST)
\$2,362.73	\$236.27	\$2,599.00

Section 5: Certifications

Procurement officer: I certify this requisition and endorse that it complies with the requirements of the Queensland Procurement Policy, and the agency's procurement policy and associated procedures.

Name	Procurement authorisation level
CELIA JEFFERIS	2
Telephone number	Signature
07-49716501	4p4(6) Personal informa
Date	
31/01/2019	

Financial approval: I certify that the GL account codes, cost collector codes, tax codes and all other information are correct. I approve this expenditure in accordance with my delegated Financial Authority.

Name	Position
DAVE ORGILL	P/Ranger Southern GBR
DAL/level (if applicable)	Signature
4	sch4p4(6) Personal information
Date	
31/01/2019	

Email completed form and supporting documentation to: operationalprocurement@dsiti.qld.gov.au

Privacy statement: The information being collected in this form is for the purpose of managing the financial accountability relevant to Queensland Government and is authorised under the *Financial Accountability Act 2009*. Your personal information may be disclosed within the Queensland Government, contracted service providers or financial institutions only as is necessary for the performance of the financial functions performed by these bodies. Your personal details will not be disclosed to any other third party or used for any other purpose without your consent, unless authorised or required to do so by law.

Section 6: Order details

Line	Item description	Quantity	Unit of issue	Unit rate (excluding GST)	Tax code	GST %	Value (excluding GST)	GST amount	Price (including GST)	Account assign	GL account/asset code	Cost collector	Cost type
1	DJI Phantom 4 Pro+ V2.0 - Quadcopter	1.0	EA	\$2,362.73	PG	10%	\$2,362.73	\$236.27	\$2,599.00	Asset	NQA02522	1002622	Cost centre
Packing/handling charges								\$0.00	\$0.00				
Total							\$2,362.73	\$236.27	\$2,599.00				

Please complete Section 5: Certifications on page 1.

Agency*	Company code*	Requisition reference number	Plant	Storage location	Purchasing Group
DES	2401	GBRR181936	2401	Please Specify	Please Specify

Award contract reporting*	Offer type*	Quote/ITO/SOA reference number*
Selective offer process	Quotations	

Section 1: Vendor information

Vendor name	
GARRICKS CAMERA HOUSE	
Vendor number*	Telephone number
6150536	49211479
ABN/ACN	
1 3 6 0 4 2 1 5 6 5 2	
Email address	Contact name
rockhampton@camerahouse.com.au	(6) Personal info
Address	
Shop 224/225 Stockland 176-331 Yaamba Road, North Rockhampton Q	
Postcode	
4 7 0 1	

Section 2: Requisition officer

Name	
STEVE BURKE	
Business unit	Telephone number
DES / QPWS / GBRMPR / CCMU	(sch4p4(6) Personal information)
Email address	
steve.burke@des.qld.gov.au	
Additional contact person	

Section 3: Instructions

Purchase order (supplier's copy)	Purchase order (receiver's copy)	☐ Multiple invoices expected (This creates a service order PO)	Payment terms (if required)
Send to vendor/supplier	Send to both requisition and procurement		0007
Discount incentive	Delivery date*	Delivery address*	Postcode*
	4/02/2019	John Howes Drive Yeppoon QLD	4 7 0 3

Additional instructions

Please complete **Section 6: Order details** on page 2.**Section 4: Automated totals** (automatically populated from Section 6)

Total value (excluding GST)	Total GST	Total amount (including GST)
\$2,362.73	\$236.27	\$2,599.00

Section 5: Certifications

Procurement officer: I certify this requisition and endorse that it complies with the requirements of the Queensland Procurement Policy, and the agency's procurement policy and associated procedures.

Name	Procurement authorisation level	
CELIA JEFFERIS	2	
Telephone number	Signature	Date
07-49716501		31/01/2019

Financial approval: I certify that the GL account codes, cost collector codes, tax codes and all other information are correct. I approve this expenditure in accordance with my delegated Financial Authority.

Name	Position	
DAVE ORGILL	P/Ranger Southern GBR	
DAL/level (if applicable)	Signature	Date
4		31/01/2019

Email completed form and supporting documentation to: operationalprocurement@dsiti.qld.gov.au

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Section 6: Order details

Line	Item description	Quantity	Unit of issue	Unit rate (excluding GST)	Tax code	GST %	Value (excluding GST)	GST amount	Price (including GST)	Account assign	GL account/asset code	Cost collector	Cost type
1	DJI Phantom 4 Pro+ V2.0 - Quadcopter	1.0	EA	\$2,362.73	PG	10%	\$2,362.73	\$236.27	\$2,599.00	Asset	NQA02522	1002622	Cost centre
Packing/handling charges								\$0.00	\$0.00				
Total							\$2,362.73	\$236.27	\$2,599.00				

Please complete **Section 5: Certifications** on page 1.

To:
GARRICKS CAMERA HOUSE
176-331 YAAMBA RD
NORTH ROCKHAMPTON QLD 4701

Deliver to:
STEVE BURKE PH: [redacted]
DES/QPWS/GBRMPPR/CCMU
JOHN HOWES DR
YEPPPOON QLD 4703

Invoice to:
Please send Invoice to the delivery address

Department of Environment and Science

Purchase order 4500332205

Date: 01.02.2019

Vendor No: 6150536

Purchasing Contact ES - DES

Telephone

Delivery Date 04.02.2019



Queensland
Government

ABN: 46640294485

Page 1 of 1

Fax

GOODS RECEIPT COPY

Terms of Payment: within 30 days Due net

REQUISITION NO: GBRR181936

PURCHASE ORDER ENQUIRIES TO: STEVE BURKE PH: [redacted]

INVOICES TO:
PO BOX 770
YEPPPOON QLD 4703

Item	Material	Description	Order qty.	Unit	Price/Unit	Net Value	GST	Gross Value
00010		DJI PHANTOM 4 PRO+ V2.0 QUADCOPTER	1	each	2,362.73/ 1	2,362.73	236.27	2,599.00
Total Including GST								\$2,599.00

This purchase order is released subject to our standard terms and conditions. To obtain a copy, please refer to the Purchasing Contact.

Help Queensland end domestic and family violence. See how at <https://www.forgov.qld.gov.au/workplace-package-domestic-and-family-violence>

TAX INVOICE

Sold To:

QLD Dept Environment & Science
DES/QPWS/GBRMPPR/CCME
JOHN HOWES DR
YEPPON 4703

Deliver To:

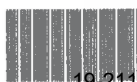
QLD Dept Environment & Science
DES/QPWS/GBRMPPR/CCME
JOHN HOWES DR
YEPPON 4703

Invoice No	419971
Invoice Date	01-FEB-19
Our Order No	419971
Order Date	01-FEB-19
Customer No	DES00
Customer Ref/PO	4500332205
Staff Member	Dale

Stock Code	Item Description	Shipped	Backordered	Item Price	Line Total
CP.PT.00000013.01	DJI Phantom 4 Pro+ Obsidian Drone S/N.: 189cf2tba20606 ***** PURCHASE ORDER No.: 46640294485 REQ NO.: GBRR181936 ***** CONTACT: STEVE BURKE PH: (6) Personal info ***** DJI ACCOUNT EMAIL: steve.burke@des.qld.gov.au PASSWORD: (6) Personal info	1		2,599.00	2,599.00

Approved for payment
5/2/19

Total Ex GST	\$2,362.73
GST	\$236.27
Invoice Total	\$2,599.00
Previous Payments	\$0.00
Paid Today	\$0.00
Balance Due	\$2,599.00



TAX INVOICE

P: 07 4921 1479

F: 07 4927 5641

E: rockhampton@camerahouse.com.au

Sold To:

QLD Dept Environment & Science

DES/QPWS/GBRMPR/CCME

JOHN HOWES DR

YEPPON 4703

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QLD Dept Environment & Science

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19-211

Direct Deposit: BSB: 014580 Account: 219067867

Page 462 of 462

Page 1 of 1