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 Enquiries: Tom Reilly

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## Summary Report: Flora and Fauna Studies, October 2013

Dear Frank,

The initial flora and fauna surveys for the Tregony Project for Ord River Resources (ORR) occurred between the 14 and 18 October 2013. This letter summarises data collected from our studies and provides some preliminary findings that may influence the mine design at the site. Please note that all information presented in this summary report will be included and further justified in the Tregony Flora and Fauna Report that will be finalised after the March/April 2014 surveys.

### Survey Effort

The October 2013 field studies included:

- Preliminary land unit surveys and mapping
- Flora surveys and habitat assessment
- Fauna surveys (included targeted searches for Greater Bilby)

Survey effort is provided in Figure 1.

Three Wulain Rangers (from Lajamanu CLC) participated in the surveys. The rangers participated in site digging pitfall traps, laying and baiting Elliott traps, checking traps, fixing tyres, Greater Bilby searches, and general camp site activities (i.e. camp fire, food preparation).

### Land Units

Preliminary land unit surveys identified four land units within the Tregony project area, these are listed below. The land unit map has not been completed for inclusion in this summary report.

1. Palaeochannel
2. Rocky Rise
3. Elevated Drainage Depression
4. Lateritic Sand Plain

Land units descriptions and ground-truthed mapping will be provided in the final flora and fauna report. Knowledge of land unit types, extent, and condition are important for assessing probability of threatened species occurrence at the site.

### Flora Survey and Habitat Assessment

Twenty-two flora sites were surveyed, including 8 full reference sites and 14 check sites (see Figure 1 for site locations) (survey methods will be included in the flora and fauna report). A preliminary

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flora species list for the survey period is provided in Table 1 (please note that this list is not complete as we are still awaiting ID confirmation on several voucher specimens from our botanists and pending consultation with specialists in Alice Springs). However, we are confident that no threatened flora species were identified during the survey (under *TWPC Act* or *EPBC Act*). Data on endemic, near threatened, and data deficient species is also not available at this stage but will be provided in the final report. This information will not influence decisions during the mine design phase or your current exploration program.

The flora survey identified several distinct floristic variations within the four land unit boundaries. These will be described and possibly mapped in the flora and fauna report for Tregony and will provide useful information relevant for rehabilitation objectives and outcomes.

No nationally significant habitat or vegetation types were identified.

Palaeochannels are regarded as “*sensitive habitat type*” in the Tanami Desert as they are known to hold a high conservation value and supply refuge for native flora and fauna during dry times. However, palaeochannels located at Tregony are in relatively poor condition as they have been highly impacted by cattle for several decades. Impact from cattle is similar to most habitat types observed in the study area, however it is more pronounced in the palaeochannels as these areas provide more shade, better fodder, and possibly surface water after rainfall. Nonetheless, despite cattle impact, it is likely that government authorities will require ORR to minimise impact to palaeochannel in principal and also minimise risk to ground water interference or contamination during mining operations.

No declared weeds were identified within the project area. Mimosa Bush (*Acacia farnesiana*) was identified on road verges and around the edges of dams. This native species is not a declared weed but can be considered as a nuisance species.

No culturally significant flora species were identified, however this will need to be confirmed by consultation with Traditional Owners and the Central Land Council (CLC). Rangers from the CLC that participated in the surveys mentioned that some flora species in the area may be used for medical related practices (i.e. *Eucalyptus victrix* leaves can be boiled and consumed to relieve stomach pains) and also the project area contains rock material suitable for making stone tools (significance to be confirmed during archaeological surveys). The CLC Rangers that participated in the surveys were not Traditional Owners of the study area.

## Fauna Survey

Eight fauna sites were surveyed, plus additional active search sites and transect searches for Greater Bilby (see Figure 1). A total of 66 terrestrial vertebrate species were recorded within the project area comprising of 17 reptiles, 40 birds, and 9 mammals (Table 2, Table 3 and Table 4).

One threatened fauna species was identified during the survey, the Greater Bilby (*Macrotis lagotis*), which is Vulnerable under the *TPWC Act* and the *EPBC Act*. There was no recent evidence of this species on the site as only old diggings and collapsed burrows were observed in the lateritic sand plains on the eastern portion of the project area (see Figure 1). Additional survey effort for Greater Bilby sign will occur during follow up surveys in March/April 2014 using a more systematic survey approach with quad bikes and selected transects through suitable habitat (focusing on areas where proposed infrastructure will be located).

Nonetheless, as the project area has evidence of Greater Bilby presence, the Northern Territory and Federal Governments will expect a significant level of survey effort for Greater Bilby to provide enough evidence that the proposed mining development either avoids or minimises potential impacts to the species. This will require ORR to position mining infrastructure in areas that have no evidence of Greater Bilby or in habitat types that are least likely to be utilised by Greater Bilby. From our initial inspection of the site, this seems feasible but will require further investigations and discussions in regards to what infrastructure is flexible in terms of its positioning. Our survey effort and habitat mapping to be included in the flora and fauna report will provide ORR with a good basis for positioning infrastructure in a way that will minimise impact on Greater Bilby. A map that shows Greater Bilby activity and preferred habitat areas will be provided in the report.



A specific management plan and an environmental offset agreement for the Greater Bilby will likely be required as part of the Environmental Impact Assessment (EIA).

Other species of interest that were recorded during the survey included:

- Northern Nail-tail Wallaby (*Onychogalea unguifera*) which is listed as Near Threatened species in the Northern Territory (*TPWC Act*). One incidental sighting within the project area and several sighting adjacent to the project area.
- Tanami Ctenotus (*Ctenotus tanamiensis*) was captured in a lateritic sand plain within the project area (see image in Appendix A). This species is endemic to the Tanami Desert region but is not listed as threatened under NT or Federal legislation.
- A single mound likely built by a Central Pebble Mound Mouse (*Pseudomys johnsoni*) was located in a lateritic sand plain in the southern region of the project area (see image in Appendix A). Further survey effort (surveillance cameras and Elliott trapping) will occur in March/April 2014 to determine if it is currently active.
- A collapsed Burrowing Bettong (*Bettongia lesueur*) warren was identified in a calcrete rise on the western boundary of the study area (see image in Appendix A). This is an extinct species and was not included in our species list for the site. This species has not been recorded within the Northern Territory since the 1950s and there are numerous records of collapsed warrens throughout the Tanami Desert.

Four introduced fauna species were recorded during the fauna survey, including:

- One-humped Camel (*Camelus dromedarius*)
- Feral Cat (*Felis catus*)
- Cattle (*Bos taurus*)
- Horse (*Equus caballus*)

A selection of images from the survey is provided in Appendix A of this summary report.

### Activities planned for March/April Surveys

The following survey activities are planned to occur on the March/April Surveys at Tregony:

- Ground truth preliminary land unit mapping
- Ground truth preliminary vegetation mapping (if required)
- Re-survey the eight flora and fauna sites
- Conduct systematic Greater Bilby transect surveys using quad bikes
- Set surveillance cameras on possible Central Pebble Mound Mouse

The above planned activities are all within the current scope of works (therefore no variations are required for discussion).

Please contact us if you require clarification on any of the information presented in this summary report.

Yours sincerely

Tom Reilly  
Project Manager  
**Senior Environmental Scientist**  
**EcOz Environmental Services**

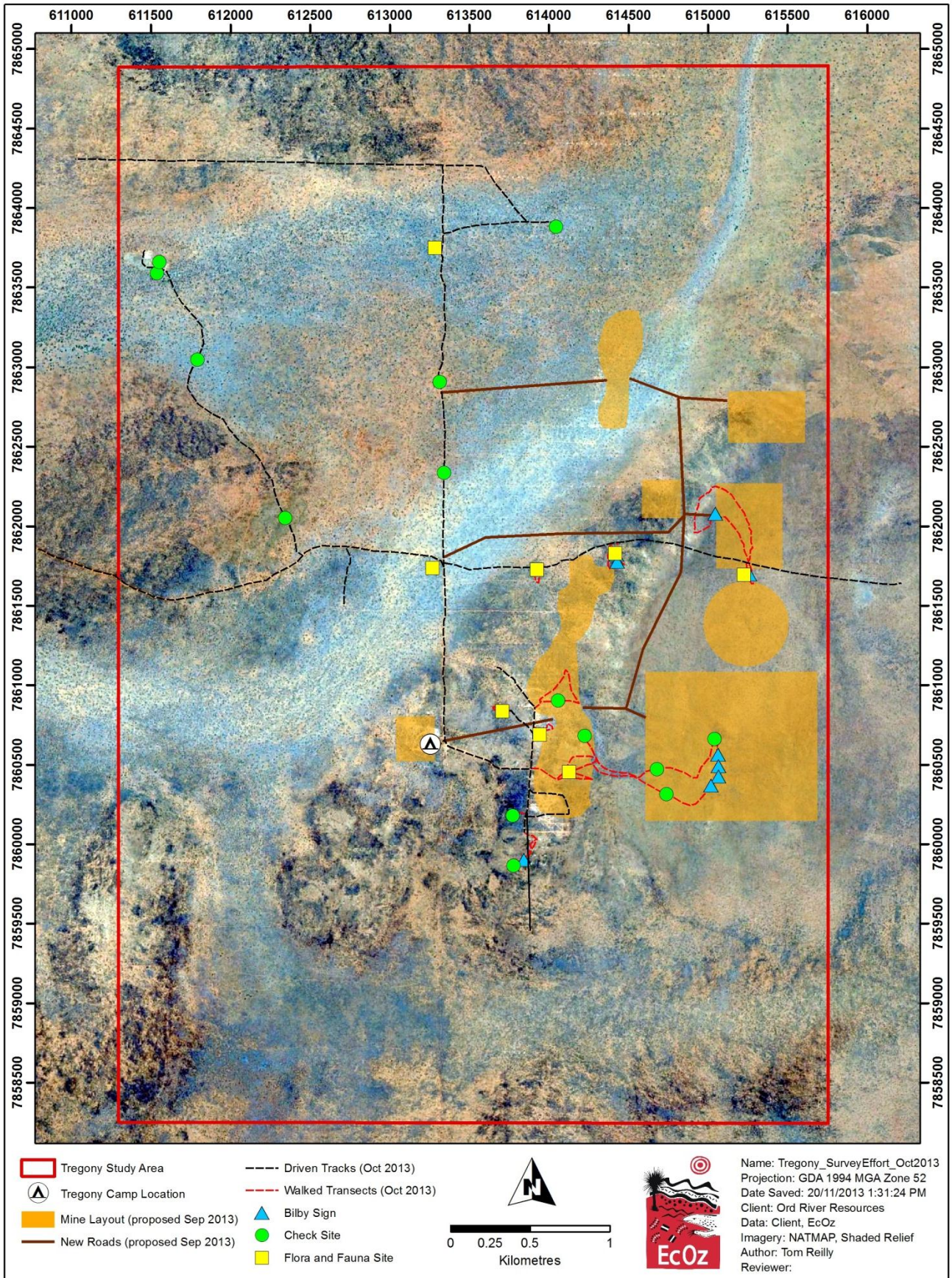


Figure 1. Ecological Survey Effort, Tregony Project, October 2013.



**Table 1. Draft Tregony flora list, October 2013 (awaiting confirmation from herbarium vouchers).**

Flora Species	Full Reference Sites									Check Sites (incomplete)								Total Species Records
	P1	P2	RR1		RR2	LS1	ED1	ED2	ED3	LU8	LU9	LU10	LU11	LU12	LU13	LU14	ED4	
			1a	1b														
<i>Acacia adoxa</i>					1	1						1		1				4
<i>Acacia adsurgens</i>		1		1			1	1	1								1	6
<i>Acacia ancistrocarpa</i>		1	1	1														3
<i>Acacia coriacea</i>	1	1				1	1	1	1	1				1		1		9
<i>Acacia elachantha</i>							1		1							1		3
<i>Acacia estrophiolata</i>																1	1	2
<i>Acacia hemignosta</i>		1						1								1		3
<i>Acacia hilliana</i>					1													1
<i>Acacia lysiphloia</i>							1		1	1				1	1	1	1	7
<i>Acacia sp.</i>											1	1	1		1		1	5
<i>Acacia stipuligera</i>						1												1
<i>Acacia tenuissima</i>		1					1		1							1		4
<i>Acacia umbellata</i>	1																	1
<i>Aristida holathera</i>					1	1									1			3
<i>Aristida inaequiglumis</i>	1							1										2
<i>Aristida sp.</i>		1											1					2
<i>Atalaya hemiglauca</i>								1									1	2
<i>Capparis mitchellii</i>								1									1	2
<i>Carissa lanceolata</i>	1	1					1	1	1					1				6
<i>Chrysopogon fallax</i>	1																	1
<i>Cymbopogon oblectus</i>				1														1
<i>Dodonaea viscosa</i>			1															1
<i>Einadia nutans</i>						1												1
<i>Eragrostis sp.</i>						1		1	1						1			4
<i>Eucalyptus aspera</i>	1																	1
<i>Eucalyptus brevifolia</i>	1		1	1		1	1		1	1	1	1	1	1	1			12
<i>Eucalyptus opaca</i>							1											1
<i>Eucalyptus pachyphylla</i>					1	1		1	1									4
<i>Eucalyptus pruinosa</i>								1								1	1	3
<i>Eucalyptus setosa</i>						1												1
<i>Eucalyptus sp.</i>					1							1						2
<i>Eucalyptus victrix</i>	1	1																2
<i>Eulalia aurea</i>	1	1						1						1		1	1	6
<i>Gossypium australe</i>	1																	1
<i>Gossypium sp.</i>									1									1
<i>Grevillea wickhamii</i>						1					1	1						3
<i>Hakea lorea</i>								1			1					1		3
<i>Indigofera georgei</i>			1															1
<i>Mirbelia viminalis</i>						1					1	1	1					4
<i>Olearia sp.</i>				1		1		1										3
<i>Paraneurachne muelleri</i>				1														1
<i>Petalostylis cassioides</i>						1												1
<i>Ptilotus calostachyus</i>					1													1
<i>Ptilotus sp.</i>						1												1
<i>Rulingia sp.</i>													1					1
<i>Scaevola sp.</i>						1												1
<i>Senna artemisioides</i>															1			1
<i>Senna notabilis</i>			1															1
<i>Senna oligophylla</i>							1											1
<i>Sida sp.</i>						1												1
<i>Triodia basedowii</i>			1	1	1													3
<i>Triodia schinzii</i>							1											1
<i>Triodia sp.</i>		1				1		1	1	1	1		1	1	1			10
<i>Ventilago viminalis</i>								1								1	1	3
<b>Total Species</b>	<b>10</b>	<b>10</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>17</b>	<b>9</b>	<b>15</b>	<b>11</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>11</b>	<b>9</b>	<b>54 Species</b>



**Table 2. Tregony reptile data, October 2013**

REPTILE		ED1	ED2	ED3	LS1	P1	P2	RR1	RR2	Incid	Totals
<i>Carlia munda</i>	Striped Rainbow Skink			1			5				6
<i>Carlia triacantha</i>	Three-Spined Rainbow Skink									1	1
<i>Ctenophorus isolepis</i>	Military Dragon				2			1			3
<i>Ctenophorus nuchalis</i>	Central Netted Dragon									4	4
<i>Ctenotus piankai</i>	Pianka's Ctenotus								1		1
<i>Ctenotus robustus</i>	Robust Ctenotus	3						1			4
<i>Ctenotus schomburgkii</i>	Schomburk's Ctenotus		1								1
<i>Ctenotus tanamiensis</i>	Tanami Ctenotus				1						1
<i>Diporiphora lalliae</i>			1			1	5	1		4	12
<i>Lerista aericeps</i>			1					1	4		6
<i>Lerista bipes</i>	Two-Toed Lerista							1			1
<i>Lucasium stenodactylum</i>	Crowned Gecko				1			1			2
<i>Menetia greyii</i>	Grey's Menetia					1		1			2
<i>Morethia ruficauda</i>	Red-Tailed Snake-Eyed Skink		1								1
<i>Pygopus nigriceps</i>	Western Hooded Scaly-foot	1									1
<i>Strophurus ciliaris</i>	Spiny-tailed Gecko				4			1	1		6
<i>Varanus gouldii</i>	Sand Goanna				1					1	2
<b>Records</b>		<b>4</b>	<b>4</b>	<b>1</b>	<b>9</b>	<b>2</b>	<b>10</b>	<b>8</b>	<b>6</b>	<b>10</b>	<b>54</b>
<b>Species</b>		<b>2</b>	<b>4</b>	<b>1</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>8</b>	<b>3</b>	<b>4</b>	<b>17</b>

**Table 3. Tregony mammal data, October 2013**

MAMMAL		ED1	ED2	ED3	LS1	P1	P2	RR1	RR2	Incid	Totals
<i>Bos taurus</i>	Cattle									1	1
<i>Camelus dromedarius</i>	Camel				1					1	2
<i>Canis lupus</i>	Dingo							1		1	2
<i>Equus caballus</i>	Horse					1	1	1			3
<i>Felis catus</i>	Cat					2					2
<i>Macropus rufus</i>	Red Kangaroo							1		4	5
<i>Macrotis lagotis</i>	Bilby			1						1	2
<i>Onychogalea unguifera</i>	Northern Nailtail Wallaby									1	1
<i>Pseudomys johnsoni</i>	Central Pebble Mound Mouse									1	1
<b>Records</b>		<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>10</b>	<b>19</b>
<b>Species</b>		<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>7</b>	<b>8</b>



**Table 4. Tregony bird data, October 2013**

BIRD		ED1	ED2	ED3	LS1	P1	P2	RR1	RR2	Incid	Totals
<i>Anas gracilis</i>	Grey Teal									1	1
<i>Anthus novaeseelandiae</i>	Australasian Pipit									1	1
<i>Artamus cinereus</i>	Black-faced Woodswallow					1	1		1	1	4
<i>Barnardius zonarius</i>	Australian Ringneck									1	1
<i>Cacatua sanguinea</i>	Little Corella									1	1
<i>Colluricincla hamonica</i>	Grey Shrike-thrush	1								1	2
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike		1	1							2
<i>Corvus bennetti</i>	Little Crow									1	1
<i>Cracticus nigrogularis</i>	Pied Butcherbird					1	1	1	1	1	5
<i>Daphoenositta chrysoptera</i>	Varied Sittella		1								1
<i>Dicaeum hirundinaceum</i>	Mistletoebird						1				1
<i>Eulophus roseicapilla</i>	Galah									1	1
<i>Eurostopodus argus</i>	Spotted Nightjar									1	1
<i>Falco berigora</i>	Brown Falcon		1							1	2
<i>Geopelia striata</i>	Peaceful Dove									1	2
<i>Grallina cyanoleuca</i>	Magpie-lark					1				1	2
<i>Haliastur sphenurus</i>	Whistling Kite									1	1
<i>Hamirostra melanosternon</i>	Black-breasted Buzzard						1			1	2
<i>Lalage sueurii</i>	White-winged Triller					1	1			1	3
<i>Lichenostomus keartlandi</i>	Grey-headed Honeyeater		1		1						2
<i>Lichenostomus penicillatus</i>	White-plumed Honeyeater		1			1				1	3
<i>Lichenostomus plumulus</i>	Grey-fronted Honeyeater									1	1
<i>Lichenostomus virescens</i>	Singing Honeyeater				1					1	2
<i>Malurus melanocephalus</i>	Red-backed Fairy-wren			1		1				1	3
<i>Manorina flavigula</i>	Yellow-throated Miner		1			1				1	3
<i>Melanodryas cucullata</i>	Hooded Robin									1	1
<i>Melithreptus gularis</i>	Black-chinned Honeyeater									1	1
<i>Merops ornatus</i>	Rainbow Bee-eater	1	1				1			1	4
<i>Microeca fascinans</i>	Jacky Winter		1			1	1				3
<i>Ninox novaeseelandiae</i>	Southern Boobook				1					1	2
<i>Ocyphaps lophotes</i>	Crested Pigeon					1				1	3
<i>Oreoica gutturalis</i>	Crested Bellbird			1	1					1	3
<i>Pachycephala rufiventris</i>	Rufous Whistler	1	1	1		1	1		1	1	7
<i>Pardalotus rubricatus</i>	Red-browed Pardalote						1				1
<i>Podargus strigoides</i>	Tawny Frogmouth									1	1
<i>Psophodes occidentalis</i>	Chiming Wedgebill									1	1
<i>Rhipidura leucophrys</i>	Willie Wagtail			1			1			1	3
<i>Smicromis brevirostris</i>	Weebill	1				1	1	1		1	5
<i>Taeniopygia guttata</i>	Zebra Finch									1	1
<i>Todiramphus sanctus</i>	Sacred Kingfisher					1					1
	<b>Species</b>	<b>4</b>	<b>9</b>	<b>5</b>	<b>4</b>	<b>12</b>	<b>11</b>	<b>2</b>	<b>3</b>	<b>33</b>	<b>40</b>



Table 5. Images from Tregony October 2013 field survey.



Tanami Ctenotus (*Ctenotus tanamiensis*)



Crowned Gecko (*Lucasium stenodactylum*)



Spiny-tailed Gecko (*Strophurus ciliaris*)



Western Hooded Scaly-foot (*Pygopus nigriceps*)



Collapsed Greater Bilby burrow (*Macrotis lagotis*) in a lateritic sand plain



Mound belonging to a male Central Pebble Mound Mouse (*Pseudomys johnsoni*)





Collapsed Burrowing Bettong (*Bettongia lesueur*) warren located on a calcrete rise at Tregony. This is an extinct species (warren possibly >50 years old).



Mimosa Bush (*Acacia farnesiana*) was identified on in the study area. Not a listed weed but can be regarded as a nuisances species.



Central Netted Dragon (*Ctenophorus nuchalis*)



*Diporiphora lalliae*



Tawny Frogmouth



Spotted Nightjar



Tregony Camp, October 2013



Flora and Fauna Survey Team, October 2013



Checking Funnel Traps



Greater Bilby burrow found during transect walks



SuppleJack (*Ventilago viminalis*)

