

PRiMARY
GOLD



Toms Gully Underground Project EIS Supplement

Appendix N – Assessment of EPBC 1999 Referral

Low Ecological Services P/L

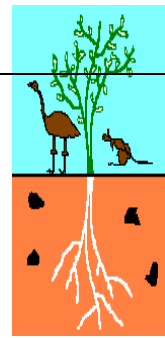
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Assessment to determine whether the Toms Gully Underground Project Northern Territory restart is likely to have significant impact in relation to matters of national significance under the *EPBC Act (1999)*, in particular with reference to the impact on threatened species, and whether the proposal requires referral to the Dept of the Environment and Energy.

Introduction and background

Primary Gold Limited (Primary Gold) commissioned Low Ecological Services P/L (LES) to undertake two seasonally distinct on-ground flora and fauna surveys targeting threatened species within areas defined by Primary Gold at Tom's Gully, Rustler's Roost and Quest 29 leases. The results are to be used by NT EPA in their EIS assessment of the mining proposal at Toms Gully Underground Project. The LES report considered the guidelines relating to the *Environmental Protection and Biodiversity Conservation Act 1999* (the Act) and concluded the actions proposed by the proponent, including vegetation clearance and excavation work for the water storage dam, borrow pits, contingency tailings storage facility (if required) and roads, in the previously extensively modified mine site of 83 ha, would not have a significant impact on populations of species listed under *the Act* (EPBC), or on any migratory species (LES 2017). Additionally, the conservation status of those species listed under the NT *Territory Parks and Wildlife Conservation Act* (TPWC Act) would not be significantly affected.

Under the EPBC Act, an action will require approval from the minister if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance. The matters of state significance relevant to Toms Gully Underground Project and location include:

- nationally threatened species and ecological communities, and
- migratory species

(Department of the Environment and Energy 2013).

In particular, the guidelines state:

A referral must be made by the person proposing to take an action if the person thinks that the action will have, or is likely to have a significant impact on the following matter protected by Part 3 of the EPBC Act (<http://www.environment.gov.au/epbc/what-is-protected>).

To be 'likely', it is not necessary for a significant impact to have a greater than 50% chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility. If there is scientific uncertainty about the impacts of your action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from the Department's website: (Submitting a referral under the EPBC Act - A fact sheet for a person proposing to take an action <http://www.environment.gov.au/epbc/publications/factsheet-environment-assessment-process>)"

This summary addresses specifically the justification for referring the proposed activity within the Tom's Gully lease area (ML 1058) to only the NT EPA as referral to the Department of Environment and Energy (DoEE) under the EPBC Act does not appear to be warranted. The summary focusses on the recently updated species listed by NT government advisory bodies as species that potentially occur within the combined project area as well as those which are listed under the EPBC Act and/or the TPWC Act. Species results and information are taken from the two on ground surveys during late dry and post-wet seasons, of Tom's Gully, Rustler's Roost and Quest 29 Flora and Fauna Report for Primary Gold (LES 2017).

Species listed by NT government advisory bodies, including the EPA, included those listed under both Acts as critically endangered, endangered and vulnerable (Table 1). In determining if mining actions are likely to have a significant impact on these species, and therefore require the proposal to be referred to the Department of Environment and Energy, it was necessary to consider if there is a real chance or possibility the action will:

- *adversely affect habitat critical to the survival of a species,*
- *modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or*
- *introduce disease that may cause the species to decline.*

Additional criteria for critically endangered or endangered species include:

- *a long-term decrease in the size of a population,*
- *reduce the area of occupancy of the species,*
- *fragment an existing population into two or more populations,*
- *disrupt the breeding cycle of a population,*
- *result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat, or*
- *interfere with the recovery of the species.*

Additional criteria for vulnerable species include:

- *lead to a long-term decrease in the size of an important population of a species*
- *reduce the area of occupancy of an important population*
- *fragment an existing important population into two or more populations*
- *disrupt the breeding cycle of an important population*
- *result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat, or*
- *interfere substantially with the recovery of the species.*

A **population** is defined under the EPBC Act as

"...an occurrence of the species in a particular area. In relation to critically endangered, endangered or vulnerable threatened species, occurrences include but are not limited to:

- *a geographically distinct regional population, or collection of local populations, or*
- *a population, or collection of local populations, that occurs within a particular bioregion."*

An **important population** is defined as:

"...a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- *key source populations either for breeding or dispersal*
- *populations that are necessary for maintaining genetic diversity, and/or*
- *populations that are near the limit of the species range."*

Desktop and on-ground survey results and findings

No threatened ecological communities occur within 20km of combined lease areas (Tom's Gully, Rustler's Roost and Quest 29) and although the EPBC Protected Matters Species Tool (PMST) and NT Fauna Atlas identified a total of 45 migratory species as occurring, or suitable habitat potentially occurring, within 20 km of the combined lease areas, none were recorded at Tom's Gully during the on-ground surveys.

Targeted, on-ground surveys were conducted by qualified scientists within habitats defined as suitable for the threatened species identified by the NT EPA, as well as other listed species identified from searches of the EPBC PMST and NT Fauna Atlas. These additional species either occurred, or had the potential to occur, within the 20 km of the three lease areas. Sampling at Tom's Gully covered seven of the identified habitats in the combined lease areas, but no threatened flora or fauna species were recorded in the on-ground surveys and habitat was found to be marginal or minor.

The two species of particular concern highlighted by the NT EPA were the yellow-snouted gecko (*Lucasium occultum*) and the sub-shrub *Helicteres macrothrix*. In addition to the trapping grids and motion-sensing cameras, species-specific searches were conducted for occurrence of yellow-snouted gecko within the marginally suitable and limited habitat at Tom's Gully. Spotlighting by two to three people occurred over a total of 12 nights in woodland vegetation and in well-developed leaf litter. No individuals were recorded from any sampling method and it was determined that due to marginal quality of habitat in the area, there was a low residual likelihood the species occurs in Tom's Gully. Therefore, proposed operations are not likely to have a significant impact on a population of the species or the conservation status of the species.

All survey sites were searched intensively for *H. macrothrix*, including the site situated in the newly proposed water storage dam located in suitable habitat. Any candidate specimens were collected for further identification by the NT Herbarium but all were identified as a related species, not *H. macrothrix*. The report concluded that there were no significant populations of *H. macrothrix* in the survey area and mining operations have a very low risk of having an impact on the species.

The remaining threatened species highlighted by the NT EPA and NT government advisory bodies are listed in Table 1 and were similarly surveyed in respective suitable habitats (over three consecutive nights or occasions) using Elliott traps, funnel traps, standardised bird survey techniques, bat echolocation detectors, motion-detection cameras and/or active searches. Quality of the habitats present in Tom's Gully was marginal and no occurrences of any species were detected during surveys. Therefore, it is unlikely these species will be significantly affected by the proposed mining activity (Table 1).

Unrelated to the EPBC referral, four NT near threatened species were recorded in on-ground surveys at Tom's Gully: orange leaf-nosed bat (*Rhinonictes aurantia*), Arnhem sheath-tailed bat (*Taphozous kapalgensis*), yellow-rumped mannikin (*Lonchura flaviprymna*) and bush-stone curlew (*Burhinus grallarius*). The localised nature of proposed operations and the widespread or locally common distribution of these mobile species indicated any negative impacts from the operations would be unlikely or a low possibility.

Three invasive weed species (gamba grass (*Andropogon gayanus*), annual mission grass (*Cenchrus pedicellatus*, previously *Pennisetum pedicellatus*) and olive hymenachne (*Hymenachne amplexicaulis*) were recorded in Tom's Gully at 6 sites during the surveys. These invasive species are recognised as constituting a key threatening process to several listed species, including listed fauna species

previously recorded in, or likely to occur in, Tom's Gully, or within a 20 km radius of Tom's Gully: including the Gouldian finch (*Erythrura gouldiae*), partridge pigeon (*Geophaps smithii smithii*), northern quoll (*Dasyurus hallucatus*). Yellow-snouted gecko (*Lucasium occultum*) is also threatened by these invasive weed species but the closest record to Tom's Gully is 27 km north and none were detected during surveys. The closest occurrence of any of these weed species to a listed species within the Tom's Gully lease area was for annual mission grass, which was recorded 780 m from a 1988 partridge pigeon location, and 1.4 km from a 1991 northern quoll location placed just beyond the lease boundary. This key threatening process has an associated Threat Abatement Plan and the implementation of any strategic plan also associated with these Weeds of National Significance are the responsibility of land holders and land managers and will be required in the proposed mine management plan.

Feral pig (*Sus scrofa*), cat (*Felis catus*) and cane toads (*Rhinella marina*) are three feral species recorded at Tom's Gully. Historically, pig and cat were detected in 1988, corresponding to northern quoll records at the same location. During the current on-ground surveys, pig and cane toads were present. All feral species are listed as Key Threatening Processes and all have associated Threat Abatement Plans.

- Predation by feral cats
- Predation, habitat degradation, competition and disease transmission by feral pigs
- The biological effects, including lethal toxic ingestion, caused by cane toads (*Bufo marinus*)

Species listed as adversely affected by cat predation include partridge pigeon, black-footed tree-rat, northern quoll and fawn antechinus. Northern quoll, *Varanus* spp. and pale field-rat have been identified as being negatively affected by cane toads.

Primary Gold have indicated that during operations, measures will be taken to prevent the project from increasing the local population of feral pigs, cats and cane toads. If it is identified that localised population increases have occurred, then mitigation measures, in accordance to the above abatement plans, will be implemented.

Limitations of the surveys

Records obtained from the NT Fauna and Flora Atlases display records obtained from areas which have been surveyed previously. The lack of records at a locality may represent a lack of suitable habitat or a lack of survey effort, thereby contributing to a perceived absence of various species in the area. In the case of Tom's Gully, the majority of records in the vicinity pre-date 2000. Also, in the Tom's Gully region, most records of threatened species are from the lowland areas through which the highway passes; this area is immediately adjacent but not typical of the geomorphology and associated habitat of the Toms Gully site and if not interpreted correctly, can give a misleading conclusion of potential species or habitat presence on the project area.

LES has attempted to carry out surveys at an appropriate spatial scale for the proposed development. While this will increase the chances of obtaining sufficient data required to detect the presence of threatened species, it cannot guarantee that the species lists are complete. Surveys were aimed at detecting appropriate landscapes and assessing the potential presence of threatened species within the survey areas. However, it is not possible to make conclusions about populations of a species from only occurrence data, specifically information about species abundance or density within the survey areas and surrounds is required.

Justification for determination against referral under matters of national significance guidelines

The guidelines for determining if an action should be referred to the DoEE under the EPBC Act relate to significant impact on populations of a species. As stated above, the on-ground surveys

conducted within Tom's Gully Underground Project and the other leases can only comment on the potential impact on the species in the area of the survey and can only assess the effects of mining operations at a population level and site level by comparison with knowledge of the species total distribution and habitat requirements available from the Atlas and other published data. In addition, the non-detection of migratory species does not prove such species are absent from the site but does allow assessment of the quality of habitat of the site in relation to known habitat requirements of the species.

The justification that the proposed Tom's Gully Underground Project is not likely to have a significant impact on the conservation status of the species listed by the NT EPA and other government advisory agencies is based on:

- literature and data base reports of the distribution,
- habitat requirements of the particular species,
- ground survey data and assessment of on-site habitat for threatened species,
- the marginal value or limited distribution of suitable habitat for particular species,
- current poor condition of the habitats (situated within an existing brownfield footprint),
- the impact from other threats such as changed fire regimes and predation, and
- the mitigation of the spread of the invasive species detrimental to threatened species through the implementation of the appropriate weed abatement plans.

Additional Consideration

Primary Gold, when implementing the Toms Gully Underground Project restart, will include environmental management and mitigation measures presented in the Draft EIS and more recently updated in the submitted EIS Supplement. These measures will further reduce the project's potential impacts.

References:


Low Ecological Services (LES) (2017) Tom's Gully, Rustler's Roost and Quest 29 flora and fauna report. Report prepared for Primary Gold Limited, integrating December 2016 and May 2017 surveys. Perth.

Department of the Environment and Energy (2013) The significant impact guidelines 1.1—matters of national significance. <http://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance>

Primary Gold Ltd (2015) Toms Gully Underground Project, Draft Environmental Impact Statement, Dated 21 September 2015.

https://ntepa.nt.gov.au/_data/assets/pdf_file/0009/290619/toms_gully_draft_eis_part_a.pdf

Primary Gold Ltd (2018) Supplementary Environmental Impact Statement, Toms Gully Underground Project (available on Northern Territory Environment Protection Authority once lodged)

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	Species		Identified by EPA as species of interest	Status		Species affected by declared threatening process or other threats	Summary of preferred habitat	Suitable habitat in Tom's Gully	Record of historical occurrence in Tom's Gully	Predicted likelihood of occurrence from desktop survey (determined across all three leases, not exclusively Tom's Gully)	Recorded at Tom's Gully during flora and fauna survey (Site)	Residual likelihood of occurrence post-ground survey	Action will have significant impact on species	Other major threats
	Common name	Scientific name		TPWC *	EPBC ^									
FLORA														
		<i>Helicteres macrothrix</i>	X	En	En	<i>Eucalyptus tectifica</i> , <i>E. miniata</i> or <i>E. tetradonta</i> woodland on clayey soils derived from siltstone or more sandy soils derived from syenite	yes but marginal quality	no (closest record 4.4 km SE of Tom's Gully)	high	ND	Region - high, TG -low	no	climate	
		<i>Schoutenia ovata</i>	x	Vu	-	semi-deciduous vine thicket on syenite and limestone outcrops	yes but marginal quality	no (closest record 2.9 km SE of Tom's Gully in 1998)	high	ND	Region - high, TG -low	no	climate	
		<i>Stylidium ensatum</i>	x	-	En	Poorly drained grassy flats that remain wet in the dry season. Often found with <i>Eriachne burkittii</i> , <i>Pandanus</i> spp., <i>Osbeckia</i> spp. and <i>Fimbristylis furva</i>	restricted	no (closest record 4.6 km SE of Tom's Gully in 1989)	high	ND	Region - high, TG -low	no	climate	
		<i>Goodenia quadrifida</i>	x	-	Vu	cracking clay plains	no	no (closest record 5.7 km NE Tom's Gully in 1967)	high	ND	Region - high, TG -low	no	climate	
Weeds sepecies														
	gamba grass #	<i>Andropogon gayanus</i>						no		CT2, CT3,TT1,TT4,WRD	high	control of threat required	fire	
	para grass #	<i>Brachiaria mutica</i>						no		ND	high	control of threat required		
	olive hymenachne #	<i>Hymenachne amplexicaulis</i>						no		CT4	high	control of threat required		
	annual mission grass #	<i>Pennisetum pedicellatum</i>						no		TT1, TT2, TT3, CT1, CT3	high	control of threat required		
	mission grass #	<i>Pennisetum polystachion</i>						no		ND	high	control of threat required		
BIRDS														
	gouldian finch	<i>Erythrura gouldiae</i>	X	Vu	En	invasive weed species	wooded hills of snappy gum (<i>E. brevifolia</i>) or salmon gum (<i>E. tintinnans</i>) or lowland drainages to feed on seeds on perennial grasses	yes but marginal quality	no (closest record from Tom's Gully is 1.5km SE in 2010)	high	ND	Region - high, TG -low	no	grazing regimes; changed fire regimes

	partridge pigeon	<i>Geophaps smithii smithii</i>	X	Vu	Vu	invasive weed species	lowland eucalypt open forest and woodland with grassy understorey	yes but marginal quality	yes (1988 record)	high	ND	moderate	no	grazing regimes; changed fire regimes
	red goshawk	<i>Erythrotriorchis radiatus</i>		Vu	Vu		tall open eucalypt forest and riparian areas characteristic of high rainfall areas	yes but marginal quality	no (closest record is 6.5km SE of Tom's Gully in 2010)	high	NO	Region - high, TG -low	no	
MAMMALS														
	black-footed tree-rat	<i>Mesembriomys gouldii</i>	X	Vu	En	X	inhabits tropical woodlands and open forests in coastal areas, sheltering in tree hollows and pandanus stands during the day	yes but marginal quality	no (closest record is 8 km SW of Tom's Gully in 1999)	high	ND	Region - low, TG -low	no	cat predation
	bare-rumped sheath-tail bat	<i>Saccolaimus saccolaimus nudicluniatus</i>	X	DD	Cr		open pandanus woodland and eucalypt tall open forests	yes but marginal quality	no (closest record is 60 km NW of Rustler's Roost)	moderate	ND	Region - moderate, TG -low	no	
	northern quoll	<i>Dasyurus hallucatus</i>	X	Cr	En	X	a wide range of habitat, including rocky areas and many eucalypt open forests	yes	yes (1988 record)	moderate	ND	Region - low, TG -low	no	predation by cats; cane toads
	fawn antechinus	<i>Antechinus bellus</i>	X	En	Vu	X	savannah woodland and tall open forest on the Top End NT	yes but marginal quality	no (closest record in 3.6 km SE of Tom's Gully 1988)	high	ND	low-moderate	no	predation by cats
	pale field-rat	<i>Rattus tunneyi</i>	X	Vu	-	X	dense vegetation along creeks	yes but marginal quality	no (3.5 km SE of Tom's Gully in 1988)	high	ND	moderate	no	climate; predation by cats
feral species														
	pig	<i>Sus scrofa</i>							yes (recorded in 1988)		ST2	high	control of threat required	
	cat	<i>Felis catus</i>							yes (recorded in 1988)		ND	high	control of threat required	
REPTILES														
	yellow-snouted gecko	<i>Lucasium occultum</i>	X	Vu	En	invasive weed species	well-developed leaf litter and grasses in open forests dominated by <i>E. miniata</i> and <i>E. tetradonta</i> , typically with red sandy-loam soils.	red sandy-loam soils not present but woodlands with well-developed leaf litter patchy occurrence	no (closest record 27 N Tom's Gully)	moderate	ND	Region - moderate, TG -low	no	climate, cane toads
	floodplain monitor	<i>Varanus panoptes</i>	X	Vu	-	X	coastal beaches, floodplains, grasslands and woodlands	yes but marginal quality	yes (record 1988)	high	ND	Region - high, TG -low	no	cane toads
	Mertens' water monitor	<i>Varanus mertensi</i>	X	Vu	-	X	coastal and inland waters in all river systems of the Top End	yes, limited	no (closest record 1.9 km E Tom's Gully record 2011)	high	ND	high	no	cane toads

	Mitchell's water monitor	<i>Varanus mitchelli</i>	X	Vu	-	X	margins of watercourses, swamps and lagoons	yes, limited	no (closest record 3.5 km SE Tom's Gully record 1988)	high	ND	high	no	cane toads
feral species														
	cane toad	<i>Rhinella marina</i>						yes	no	high	ST1, ST2, ST3, ST4	high	control of threat required	

* NT Parks and Wildlife Conservation Act 2000 (TPWC Act)

^ Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Declared as a threatening process under EPBC Act: Ecosystem degradation,

ND = not detected

Region = 20 km buffer for PMST assessment