

## South-west Tanami Desert

### Location and Description

The south-west Tanami Desert is characterised by a complex mosaic of landforms and habitats that are distinct from the surrounding country. The Site is 440 km north-west of Alice Springs, adjacent to the Western Australian border. It encompasses much of the extensive Central Tanami Desert paleodrainage system. Other habitats within the Site include alluvial plains, dunefields, sandplains, rocky hills and rises, freshwater and saline lakes, and claypans. This habitat diversity contributes to a rich flora and fauna and the persistence of many threatened species. Vegetation is varied and includes hummock grasslands, sparse shrublands and open woodland.

### Tenure and Land Use

The Site is entirely Aboriginal freehold land held by five Aboriginal land trusts (Central Desert, Mangkururra, Yiningarra, Lake Mackay and Mt Frederick). The main land uses within the Site are Indigenous use, pastoral operations, and mining. Granites Goldmine and a number of smaller satellite mines are operating within the Site. The Tanami Road passes through the Site and Rabbit Flat Roadhouse is within it. The site sits within the proposed Southern Tanami Indigenous Protected Area.

### Significance Rating

International Significance

### Ecological Values

The South-west Tanami Desert provides habitat for 11 threatened species. It supports populations of Bilby, Brush-tailed Mulgara, Australian Bustard and Great Desert Skink, and is considered a stronghold for these and other rare or declining species in the Northern Territory. Ephemeral wetlands within the Site support the vulnerable dwarf desert spike-rush. One plant species is known only from the Site and other species endemic either to the Tanami bioregion or to the Northern Territory are also found at the Site.

### Management Issues

Major management issues within the Site include feral cat and fox, which prey on native wildlife, and fire. Mining and exploration activities are occurring within the Site and road works and other associated infrastructure may impact sensitive habitats.

### Condition

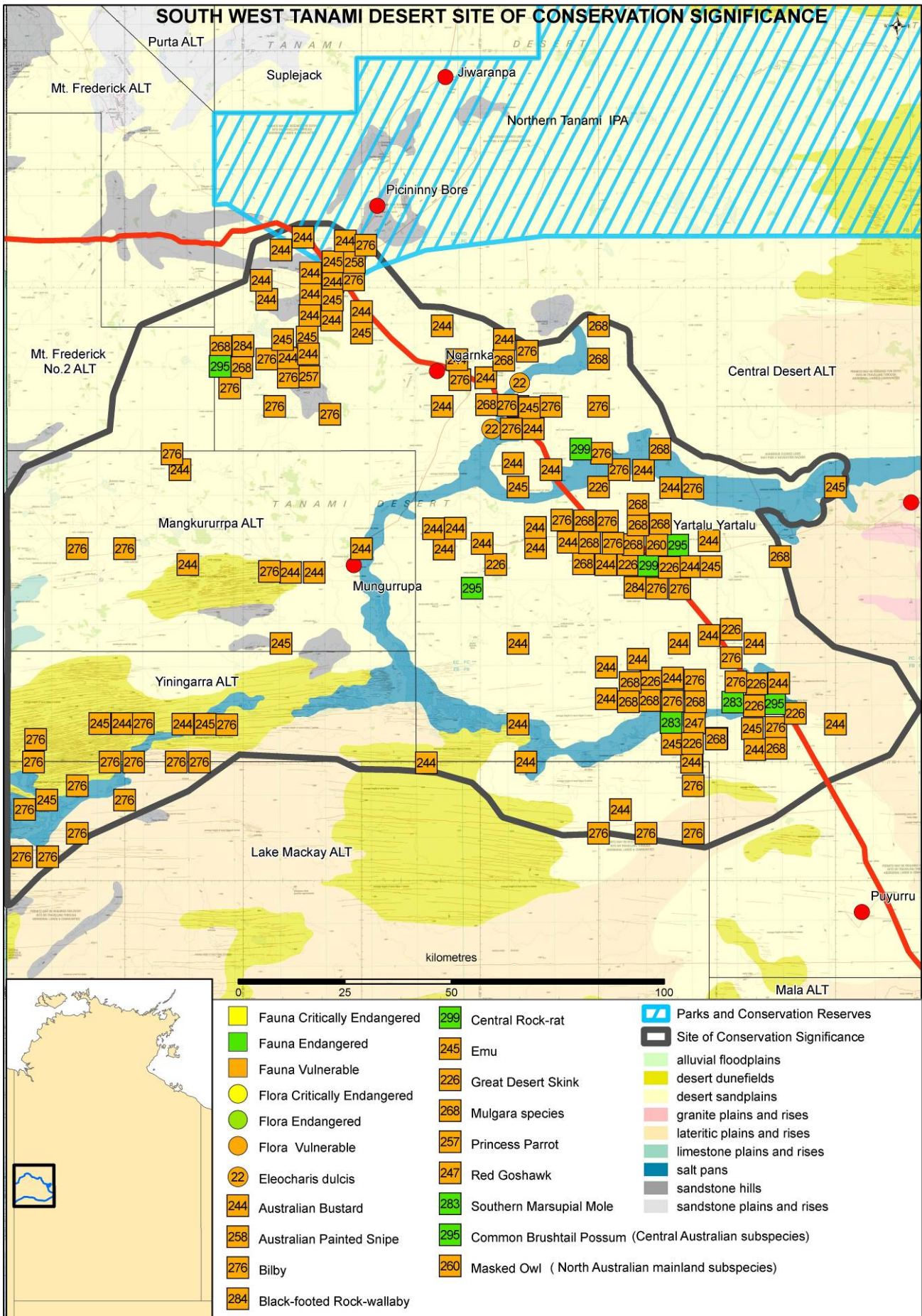
Condition varies widely across the Site depending on the relative impacts of the factors listed above.



### Current Conservation Initiatives

Biodiversity surveys are conducted annually at permanent sites within the Granites Goldmine lease as part of the Tanami Biodiversity Monitoring Program. Fire is being managed on Tanami Downs Station under a fire management plan and the lessees also plan to fence some waterbodies. Populations of threatened species are being monitored at Sangster's Bore and a dingo-proof fox baiting device is being trialled. The Site lies within the proposed Southern Tanami Indigenous Protected Area. The Central Land Council is supporting Aboriginal land owners and the Warlpiri Rangers to implement controlled burns within the Site for the protection of significant areas and to minimise the potential for wildfires.

SOUTH-WEST TANAMI DESERT - SITE OF CONSERVATION SIGNIFICANCE



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<b>LOCATION</b>	<b>SOCS Number</b>	43 (NT Parks and Conservation Masterplan Map Number 66)
	<b>Latitude/Longitude</b>	20 ° 37' South, 129 ° 51' East (at centre)
	<b>Bioregion</b>	Tanami (98%), Great Sandy Desert (2%)
	<b>Description</b>	<p>The boundary of this site is delineated based on seven Sites of Botanical Significance identified in White <i>et al.</i> (2000). These sites are aggregated and extended to include threatened species habitat. A 2 km buffer is applied to the site and it encompasses an area of 19443 km<sup>2</sup>.</p> <p>Major vegetation communities within the site include soft spinifex <i>Triodia pungens</i> and feathertop spinifex <i>T. schinzii</i> hummock grassland with acacia tall sparse-shrubland overstorey between dunes; snappy gum <i>Eucalyptus brevifolia</i> low open-woodland with soft spinifex understorey; and neverfail <i>Eragrostis xerophila</i> open-grassland with scattered trees and shrubs (White <i>et al.</i> 2000).</p> <p>Vegetation at some wetland areas includes coolabah and bluebush at swamps, and bare pans of ephemeral lakes containing <i>Ruppia</i> sp. fringed by <i>Melaleuca glomerata</i>, or samphire and <i>Acacia maconochieana</i> fringing bare pans (Duguid 2005).</p>
<b>THREATENED SPECIES</b>	<b>Significance Rating</b>	<b>International Significance</b>
	<b>Threatened plants and animals</b> (Listings at National/NT level <b>CR</b> - Critically Endangered, <b>EN</b> - Endangered, <b>VU</b> - Vulnerable, <b>NT</b> - Near Threatened, <b>LC</b> - Least Concern, <b>DD</b> - Data Deficient)	<p>11 threatened species are recently reported from this site.</p> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>▪ Dwarf desert spike-rush <i>Eleocharis papillosa</i> (VU/VU)</li> </ul> <p><b>Vertebrates</b></p> <ul style="list-style-type: none"> <li>▪ Australian Bustard <i>Ardeotis australis</i> (-/VU)</li> <li>▪ Australian Painted Snipe <i>Rostratula australis</i> (VU/VU)</li> <li>▪ Emu <i>Dromaius novaehollandiae</i> (-/VU)</li> <li>▪ Masked Owl <i>Tyto novaehollandiae</i> (EN/EN)</li> <li>▪ Princess Parrot <i>Polytelis alexandrae</i> (VU/VU)</li> <li>▪ Red Goshawk <i>Erythrorhynchus radiatus</i> (VU/VU)</li> <li>▪ Brush-tailed Mulgara <i>Dasycercus blythi</i> (VU/VU)</li> <li>▪ Bilby <i>Macrotis lagotis</i> (VU/VU)</li> <li>▪ Southern Marsupial Mole <i>Notoryctes typhlops</i> (EN/VU)</li> <li>▪ Great Desert Skink <i>Egernia kintorei</i> (VU/VU)</li> </ul> <p>Eight threatened species recorded for the site are believed to now be locally extinct from the region (Black-footed Rock Wallaby <i>Petrogale lateralis</i>, Brush-tailed Bettong <i>Bettongia penicillata</i>, Common Brushtail possum <i>Trichosurus vulpecula vulpecula</i>, Central Rock-rat <i>Zyzomys pedunculatus</i>, Golden Bandicoot <i>Isodon auratus</i>, Mala <i>Lagorchestes hirsutus</i>, Red-tailed Phascogale <i>Phascogale calura</i> and Western Quoll <i>Dasyurus geoffroi</i>).</p> <p>The site also supports populations of the Northern Nailtail Wallaby and the Spectacled Hare-wallaby, both of which are listed as near threatened in the NT.</p> <p>The high concentration of threatened species in this site is, at least partially, due to the presence of the Tanami Paleodrainage system, the Granites area providing greater habitat variety than the rest of the Tanami Desert (Southgate <i>et al.</i> 2006) and the relative absence of exotic competitors and predators (Morton <i>et al.</i> 1995).</p>
<b>ENDEMIC SPECIES</b>	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Notes</b>	<p><b>Endemic to the site:</b> One plant species (<i>Marsilea latzii</i>) is entirely restricted to this site and another (<i>Spermacoce resinosula</i>) is known only from the site and a record immediately adjacent to it.</p> <p><b>Endemic to the bioregion:</b> Three plant species recorded from this site are endemic to the Tanami bioregion (<i>Coleocoma centaurea</i>, <i>Marsilea latzii</i> and <i>Spermacoce resinosula</i>).</p> <p><b>Endemic to the NT:</b> Seven plant species recorded from this site are endemic to the NT (<i>Acacia abbreviate</i>, <i>Bonamia deserticola</i>, <i>Eleocharis papillosa</i>, <i>Goodenia halophila</i>, <i>Marsilea latzii</i>, <i>Spermacoce resinosula</i> and <i>Trachymene inflata</i>).</p> <p><b>Other:</b> Seven plant species are restricted to the Tanami bioregion within the NT but also occur in other states (<i>Acacia sabulosa</i>, <i>Acacia stellaticeps</i>, <i>Acacia synchronicia</i>, <i>Coleocoma centaurea</i>, <i>Corynotheca asperata</i>, <i>Indigofera ammobia</i> and <i>Pityrodia chorisepala</i>).</p>
<b>WILDLIFE AGGREGATIONS</b>	<b>Significance Rating</b>	<b>Not Significant</b>
	<b>Marine turtles</b>	Not applicable
	<b>Seabirds</b>	None known
	<b>Waterbirds</b>	None known
	<b>Shorebirds</b>	None known
	<b>Other aggregations</b>	None known

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WETLANDS	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Ramsar criteria met</b>	Not assessed
	<b>DIWA criteria met</b>	Not assessed
	<b>Notes</b>	The site encompasses ephemeral wetlands such as Lake Ruth and Sanctuary Swamp, which are filled by runoff from surrounding rises, and the Tanami paleodrainage system runs for some 50 km under the sandplain (Morton <i>et al.</i> 1995). Buffalo and Bullocks Head Lakes, Kilpatrick Swamp and Sanctuary Swamp occur within the site. It is thought that the lakes fill fairly regularly, Kilpatrick Swamp fills fairly infrequently, and Sanctuary Swamp is estimated to be filled every 5 years or so (Duguid 2005). Inundation can be quite long-lasting (>1 year) (A. Duguid, NRETAS, pers. comm.).
	<b>Rivers</b>	No information located
FLORA	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Notes</b>	<b>Restricted range species:</b> 15 plants reported from the site have restricted ranges within the NT ( <i>Acacia pachycarpa</i> , <i>Acacia wiseana</i> , <i>Bonamia alatisemina</i> , <i>Dampiera candidans</i> , <i>Eriachne flaccida</i> , <i>Eucalyptus cupularis</i> , <i>Glycine pullenii</i> , <i>Neobassia astrocarpa</i> , <i>Ptilotus calostachyus</i> var. <i>procerus</i> , <i>Sclerolaena muelleri</i> , <i>Sesbania cannabina</i> var. <i>sericea</i> , <i>Swainsona tanamiensis</i> , <i>Trianthema glossostigma</i> , <i>Trianthema turgidifolia</i> and <i>Triodia salina</i> ). <b>Other:</b> The site includes the healthiest (i.e. good recruitment and less fire impacted), and possibly the largest stands of <i>Acacia maconochieana</i> (D. Albrecht and P. Latz, NRETAS, pers. comm.).
OTHER ENVIRONMENTAL VALUES	<p>The higher reliability of water resources occurring in the paleodrainage system and run-on areas underlying the site result in habitats with relatively continuous production. Native mammalian herbivores and many invertebrate herbivores are often most abundant and diverse in such places (Morton 1990). The Tanami Drainage System is identified as a highly significant refuge ecological refuge by Morton <i>et al.</i> (1995).</p> <p>Southgate <i>et al.</i> (2006) found that areas like the South-west Tanami, with a variety of substrates or topographies, provide more reliability of resources and protection from some forms of disturbance, and act as significant points of refugia and for species radiation. This variety also increases the probability of a small-scale mosaic pattern of burning.</p> <p>The former Tanami Wildlife Sanctuary and West Tanami Area are listed on the Register of the National Estate for their natural values (Australian Heritage Council).</p> <p>Sanctuary Swamp is identified as being significant for biodiversity conservation by Duguid <i>et al.</i> (2005). Seven sites of Botanical Significance (Mongrel Downs, Bluebush Hills, Western Tanami Paleodrainage Systems, Dead Bullock Soak, Lake White, Tanami Paleodrainage system extension and the Tanami Range) identified in White <i>et al.</i> (2000), mostly occur within the boundaries of this site.</p> <p>This site does not support regular aggregations of waterbirds, however the wetlands provide important habitat and refuge for numerous waterbirds when inundated. Thirty one species of waterbird, 12 shorebird species and two seabird species are recorded for the site.</p> <p>There are 21 migratory species recorded for this site that are listed under international conventions or bilateral agreements protecting migratory animals.</p> <p>The site lies within the proposed Southern Tanami Indigenous Protected Area.</p>	
MANAGEMENT ISSUES	<p><b>Fire:</b> In the period 1997-2005, most parts of the site (76%) were burnt fewer than two times and none of the site was burnt more than four times. The fire regime in the site has changed and there are now more frequent uncontrolled summer wildfires, which may be affecting threatened species such as the Greater Bilby (Pavey 2006) and the Great Desert Skink (McAlpin 2001).</p> <p><b>Feral animals:</b> Cat and fox occur within the site and prey on native wildlife such as the Greater Bilby. Rabbit and camel also occur within the site.</p> <p><b>Weeds and invasive exotic plants:</b> Mossman River Grass <i>Cenchrus echinatus</i> (category B weed), buffel grass <i>Cenchrus ciliaris</i> and <i>Cyperus involucreatus</i> occur within the site. Couch grass <i>Cynodon dactylon</i> is also likely to be present and spreading.</p> <p><b>Other:</b> Mining and exploration activities occur within the site and road works and other associated infrastructure may have some impacts on sensitive habitats.</p>	

MANAGEMENT INFORMATION	<b>NRM groups</b>	Walpiri Rangers.
	<b>Protected areas</b>	The site lies largely within the proposed Southern Tanami Indigenous Protected Area (feasibility study phase).
	<b>Current management plans</b>	<p><b>Site-specific plans:</b> Tanami Downs Station fire management plan (Paltridge &amp; Latz).</p> <p><b>National recovery plans for threatened species:</b> Greater Bilby (Pavey 2006), Southern Marsupial Moles (Benshemesh 2004), Great Desert Skink/Tjakura (McAlpin 2001), Brush-tailed Mulgara (SA Department of Environment and Heritage in prep.).</p> <p><b>Other management plans:</b> Threat Abatement Plan for Predation by the European Red Fox (Environment Australia 1999); Threat Abatement Plan for Predation by Feral Cats (Environment Australia, 1999); Australian Weeds Strategy (NRMMC 2007).</p>
	<b>Monitoring programs and research projects</b>	<p>Biodiversity surveys are conducted annually at 100 permanent sites within the Granites Goldmine lease by the Central Land Council and Newmont Tanami Pty Limited as part of the Tanami Biodiversity Monitoring Program (J. Young pers. comm.). Tree health is also monitored as part of the flora surveys in this program.</p> <p>Trials of a dingo-proof fox baiting device and monitoring of threatened species populations are ongoing in the Sangster's Bore area. This work is being undertaken by the CLC-supported Warlpiri Ranger Group in conjunction with consultants and NRETAS Biodiversity Conservation. Predator and threatened species track counts are conducted along treatment (baited) and control transects. Elliott trapping and random plot-based tracking surveys are also undertaken as part of this work.</p> <p>The Central Land Council is supporting NRM board Indigenous Ecological Knowledge (IEK) projects in this area to inform ongoing management under an Indigenous Protected Area.</p> <p>The Central Land Council is supporting Aboriginal land owners and Warlpiri Rangers to implement controlled burns for the protection of significant areas and for wildfire mitigation (J. Young pers. comm.).</p> <p>Across the NT, fire is mapped continuously under the North Australia Fire Information Project <a href="http://www.firenorth.org.au/nafi/app/init.jsp">http://www.firenorth.org.au/nafi/app/init.jsp</a></p>
	<b>Management recommendations</b>	<p>Conduct a survey to identify significant wetlands within the site (NRETA 2005).</p> <p>Consider management requirements such as fencing to exclude cattle from sensitive areas (NRETA 2005).</p> <p>Work with the Indigenous rangers and other Traditional Owners to develop appropriate management for the site. Develop comprehensive vegetation mapping to inform strategic fire management for the protection of threatened species habitats and fire sensitive vegetation communities. Develop an integrated natural and cultural resource management plan for the area under the Southern Tanami Indigenous Protected Area (J. Young pers. comm.).</p> <p>Continue actions to have the site proclaimed an Indigenous Protected Area.</p>
KEY REFERENCES	<b>Papers and reports</b>	<p>Duguid, A., Barnetson, J., Clifford, B., Pavey, C., Albrecht, D., Risler, J. and McNellie, M. (2005). <i>Wetlands in the arid Northern Territory. A report to the Australian Government Department of the Environment and Heritage on the inventory and significance of wetlands in the arid NT.</i> Northern Territory Government Department of Natural Resources, Environment and the Arts. Alice Springs.</p> <p>Gibson, D.F. (1986) <i>A Biological Survey of the Tanami Desert in the Northern Territory. Conservation Commission of the Northern Territory.</i> Technical report 30. Alice Springs, NT.</p> <p>White, M., Albrecht, D., Duguid, A., Latz, P. and Hamilton, M. (2000). <i>Plant species and sites of botanical significance in the southern bioregions of the Northern Territory; volume 2: significant sites.</i> A report to the Australian Heritage Commission from the Arid Lands Environment Centre. Alice Springs, NT.</p>
	<b>Contributors</b>	<p>Theresa Nano, Biodiversity Conservation, NRETAS, Alice Springs.</p> <p>David Albrecht, Alice Springs Herbarium, NRETAS, Alice Springs</p> <p>James Young, Central Land Council, Alice Springs.</p>



Spinifex country, Sangster's Bore, South-west Tanami Desert (Photo: Jeff Cole)