

Lake Lewis and surrounds

Location and Description

Lake Lewis is a large ephemeral saline lake located about 170 km north-west of Alice Springs. The lake is fed by Napperby Creek and other small ephemeral creeks, and when inundated is relatively deep and long-lasting (up to six months). The lake system comprises vast areas of salt pans, clay pans and associated saline lakes, and is bounded in the north by Stuart Bluff Range.

Tenure and Land Use

The Site is predominantly on pastoral leasehold land within two pastoral leases (Napperby and Derwent Stations), and Aboriginal freehold land within Ngalurrjtju Aboriginal Land Trust lands. The main land use in the Site is pastoral operations. The Tanami Road passes through the Site and Tilmouth Well is within it.

Significance Rating

National Significance

Ecological Values

Lake Lewis is periodically an important site for waterbirds, and probably also for shorebirds. 27 waterbird species are reported from the Site, including significant (at a Northern Territory level) aggregations of Black-winged Stilt and Grey Teal. The Site also supports endemic and restricted range plant species. The lake has an unusual geomorphological setting in arid Australia as it is fed directly by a relatively large river, and has a population of fish when flooded. With the inclusion of the swamps and clay pans to the north of Lake Lewis there is a good variety of wetland types in this Site.

Management Issues

Grazing by cattle, spread of buffel and couch grass, and extensive fires may potentially affect the conservation values of the Site.

Condition

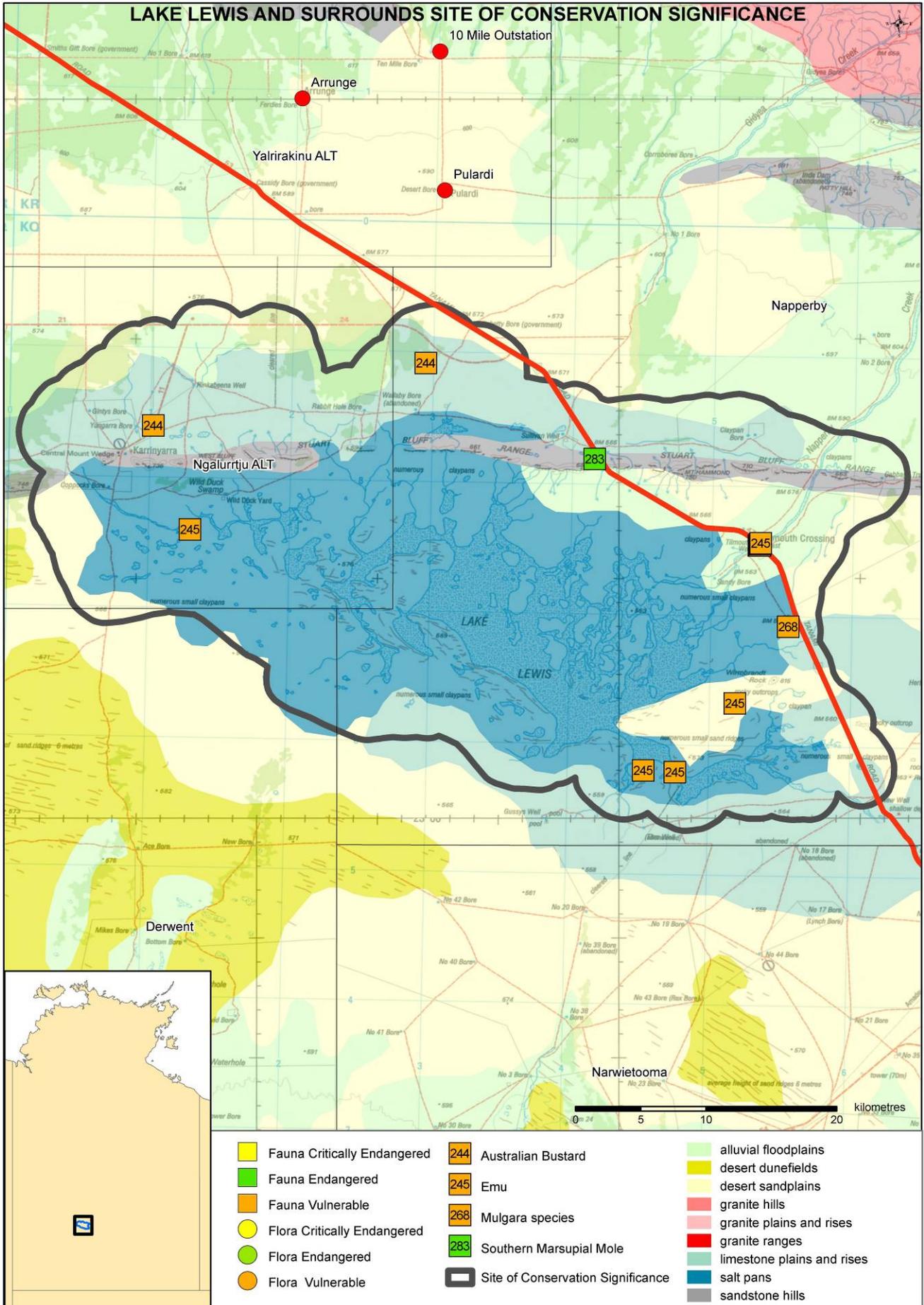
The Lake Lewis area is used for cattle grazing and there are some signs of soil erosion.

Current Conservation Initiatives

The Ngalurrjtju Aboriginal Land Trust portion of the Site is included within the proposed Southern Tanami Indigenous Protected Area.



LAKE LEWIS AND SURROUNDS - SITE OF CONSERVATION SIGNIFICANCE



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LOCATION	SOCS Number	54 (NT Parks and Conservation Masterplan Map Number 83)
	Latitude/Longitude	22° 49' South, 132° 24' East (at centre)
	Bioregion	Great Sandy Desert
	Description	<p>The boundary for the site follows that defined by White <i>et al.</i>, (2000) in listing the lake as a site of botanical significance, with the addition of a 2 km buffer. It has an area of 1704 km².</p> <p>The southern edge of the site is bounded by the shoreline of Lake Lewis and associated saline lakes. The northern boundary extends into the intervening alluvial plains and includes the Stuart Bluff Range.</p> <p>Some of the major vegetation communities at the site include bare salt pans, mulga <i>Acacia aneura</i> tall sparse-shrubland with grassland understorey, and inland teatree <i>Melaleuca glomerata</i> open-shrubland (White <i>et al.</i> 2000). When inundated, the shoreline of the lake supports the aquatic plant <i>Ruppia tuberosa</i> in abundance (Duguid, 2005).</p> <p>Lake Lewis is part of a larger wetland system which includes the Newhaven Lakes, 28 km to the west of the site. The Newhaven Lakes are also identified as a site of high conservation significance in the NT.</p>
THREATENED SPECIES	Significance Rating	Regional Significance
	Threatened plants and animals (Listings at National/NT level CR - Critically Endangered, EN - Endangered, VU - Vulnerable, NT - Near Threatened, LC - Least Concern, DD - Data Deficient)	Four threatened species are recorded from this site. Vertebrates <ul style="list-style-type: none"> ▪ Australian Bustard <i>Ardeotis australis</i> (-/VU) ▪ Emu <i>Dromaius novaehollandiae</i> (-/VU) ▪ Brush-tailed Mulgara <i>Dasyercus blythi</i> (VU/VU) ▪ Southern Marsupial Mole <i>Notoryctes typhlops</i> (EN/VU) Another threatened species recorded from the site is believed to now be locally extinct (Bilby <i>Macrotis lagotis</i>).
ENDEMIC SPECIES	Significance Rating	Not Significant
	Notes	Endemic to the NT: Three plant species recorded from this site are endemic to the NT (<i>Eragrostis subtilis</i> , <i>Sclerolaena</i> sp. <i>Saline soils</i> and <i>Triodia hubbardii</i>). Other: One plant species is only found in the Great Sandy Desert bioregion within the NT but is also found in other states (<i>Swainsona lacinata</i>).
WILDLIFE AGGREGATIONS	Significance	Regional Significance (possible National)
	Marine turtles	Not applicable
	Seabirds	None known
	Waterbirds	<p>Total numbers of waterbirds: The lake periodically supports significant populations of waterbirds (Duguid 2005). 27 waterbird species are reported for the site, and during an opportunistic 30 minute survey during an inundation event in September 2001, 13 170 birds were counted at the site (Duguid 2005). The lake had been filled in February 2000, and the surface waters had receded considerably by the time the survey was carried out, so it is likely that waterbird counts would be higher during periods of peak inundation (Duguid 2005).</p> <p>Counts of individual species: During aerial surveys in September 2001, 1000 Black winged stilts were recorded at the site (Duguid 2005). Groups of 4000 and 8000 Grey Teals were also counted at two locations on the lake during the same survey.</p> <p>Survey effort to date has been opportunistic and does not adequately document the site's value for wetland birds.</p>
	Shorebirds	Four shorebird species are recorded from the site.
	Other aggregations	None known
WETLANDS	Significance Rating	National Significance (possible International)
	Ramsar criteria met	Lake Lewis is not listed as a Ramsar site however Duguid <i>et al.</i> (2005) assessed the Lake against criteria for listing as a wetland of international importance under the Ramsar convention and concluded that the site possibly meets Criteria 1 and 5.
	DIWA criteria met	Lake Lewis is not listed in the Directory of Important Wetlands in Australia (DIWA) however Duguid <i>et al.</i> (2005) assessed the lake against criteria for listing and concluded that the site meets Criteria 1 and 3.
	Notes	Saline groundwater discharges into the Lake and inundation occurs through surface runoff following heavy rainfall. Inundation can last for up to 6 months. The lake is considered to be part of a larger wetland aggregate/system that includes the Newhaven Lakes (Duguid 2005). Extinct mound springs are thought to occur in the site (White <i>et al.</i> 2000).
	Rivers	Napperby Creek is one of a series of large periodic rivers draining the Burt Plain, all of which run towards Lake Lewis. Napperby Creek is the only watercourse with a channel that connects to the lake.

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FLORA	Significance Rating	Not Significant
	Notes	<p>Restricted range species: Two plant species reported for the site have restricted ranges within the NT (<i>Swainsona cyclocarpa</i> and <i>Daviesia eremaea</i>).</p> <p>Relictual species: One plant recorded at the site, <i>Schoenus centralis</i>, is a relictual sedge confined to rocky creek beds and seepage areas in the NT. The type location is within the site and this is one of only two locations known for the NT.</p>
OTHER ENVIRONMENTAL VALUES		<p>Lake Lewis is identified as being significant for biodiversity conservation by Duguid <i>et al.</i> (2005). Lake Lewis is identified as a Site of Botanical Significance in White <i>et al.</i> (2000).</p> <p>This lake system is believed to be the only salt lake in the NT with fish. The Spangled Grunter <i>Leiopotherapon unicolor</i> occurs in the lake and catchment area (Duguid 2005).</p> <p>Five migratory species recorded for this site are listed under international conventions or bilateral agreements protecting migratory animals.</p>
MANAGEMENT ISSUES		<p>Fire: No parts of the site were burnt more than twice in the period 1997-2005, but large-scale fires can occur. Changes in fire regime may affect conservation values at the site (NRETA 2005).</p> <p>Feral animals: No information located</p> <p>Weeds and invasive exotic plants: Caltrop <i>Tribulus terrestris</i> (category B weed) and buffel grass <i>Cenchrus ciliaris</i> occurs within the site. Couch grass <i>Cynodon dactylon</i> is also likely to be spreading in the site.</p> <p>Other: The lake area is currently grazed by cattle and over-grazing of the site may be leading to erosion.</p>
MANAGEMENT INFORMATION	NRM groups	Warlpiri Rangers.
	Protected areas	The Ngalyurrju Aboriginal Land Trust portion of the Site is included within the proposed Southern Tanami Indigenous Protected Area.
	Current management plans	<p>Site-specific plans: No information located.</p> <p>National recovery plans for threatened species: Southern Marsupial Mole (Benshemesh 2006); Brush-tailed Mulgara (SA Department of the Environment and Heritage in prep.).</p> <p>Other management plans: Australian Weeds Strategy (NRMMC 2007).</p>
	Monitoring programs and research projects	There are eleven Tier 1 rangeland monitoring points within this site (Karfs and Bastin 2001). Across the NT, fire is mapped continuously under the North Australia Fire Information Project http://www.firenorth.org.au/nafi/app/init.jsp
	Management recommendations	<p>Investigate listing of Lake Lewis in the DIWA (and possibly Ramsar) (NRETA 2005).</p> <p>Establish a survey program to assess the conservation and cultural values of the site and develop appropriate conservation management programs (NRETA 2005).</p> <p>Establish cooperative conservation and cultural heritage management with landholders and other stakeholders (J. Young, CLC, pers. comm.).</p> <p>Investigate opportunities for developing a formal Conservation Agreement or park acquisition with landholder in the longer term (NRETA 2005).</p>
KEY REFERENCES	Papers and reports	<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>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>
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