

## North of Dargaville

Kelly's Lake (Omamari), NRC Lake No. 251.



**Kelly's Lake.** Photo showing the unfenced lake margins, with a marginal fringe of open water created by cattle trampling/browsing. (Photo: Paul Champion 17 September 2018).

Summary	Kelly's Lake
<b>Surveyed:</b>	2018 (reconnaissance).
<b>Overall ranking:</b>	<b>Low:</b> A small, unfenced lake, with fenced wetland within a pasture catchment. The lake is surrounded by emergent vegetation, but significant submerged vegetation is lacking.
<b>Threats:</b>	Lake on private property with limited access. The lake is highly nutrient enriched.
<b>Management recommendations:</b>	Fencing the lake and surrounding emergent vegetation will increase the biodiversity values of the lake and potentially improve water quality. No further monitoring.

### Description

A small (1.65 ha) lake (1661867E, 6029234N), with a maximum depth exceeding 2.5 m. The water was turbid and impacted by a planktonic algal bloom. Situated in a pastoral catchment, the lake edges are unfenced and show signs of cattle impacts (emergent vegetation absent in water less than 1 m deep, pugging of lake margins). Access is across private farmland.

### Wetland vegetation

Kuta (*Eleocharis sphacelata*) and raupo (*Typha orientalis*) were the dominant emergent vegetation, with associated *Machaerina articulata*, *Isolepis prolifera*, *Carex secta*, *Cyperus ustulatus* and *Persicaria decipiens*. This vegetation formed an almost complete band surrounding the lake (up to 20 m across), but there was a zone of shallow water, colonised by the introduced *Azolla pinnata* between the emergent vegetation and the shoreline, presumably due to cattle trampling and grazing of shallow (<~1 m deep) emergent vegetation.

## Submerged vegetation

No submerged vegetation present. An algal bloom was present at the time of the survey.

## LakeSPI

Kelly's Lake is categorised as being non-vegetated with a LakeSPI Index of 0%.

## Water birds

A number of different species were observed at Kelly's Lake including mallard (*Anas platyrhynchos*), grey duck (*A. superciliosa*) or hybrids between these species, grey teal (*A. gracilis*) and individual bittern (*Botaurus poiciloptilus*), dabchick (*Poliocephalus rufopectus*), little black (*Phalacrocorax sulcirostris*) and little shag (*Phalacrocorax melanoleucos*).

## Fish

No fish were observed. A large number of introduced Australian golden bell frogs (*Ranoidea aurea*) were heard and seen around the lake margins.

## Aquatic invertebrates

No aquatic invertebrates were seen during the visit.

## Endangered species

Bittern are rated as Nationally Critical in the 2016 threat assessment. This lake is unlikely to provide breeding habitat for this species but would provide food (frogs and possibly fish) and shelter in the emergent kuta and raupo.

Grey duck is also Nationally Critical, due to hybridisation with mallard duck. Five birds seen at Kelly's Lake had characters typical of grey duck. Dabchick are now classified as At risk – Recovering and little black shag are At risk - Naturally uncommon.

## Lake Ecological Value

A preliminary ecological value rating of 3 "Low" was assigned to Kelly's Lake based on the unfenced pasture catchment, eutrophication of the water body and lack of submerged vegetation.

## Threats

Kelly's Lake is on private property with limited access. Fencing the lake and surrounding emergent vegetation will increase the biodiversity values of the lake and potentially improve water quality.

## Management recommendations

Advocate fencing the margins of this lake to the landowner. No further monitoring.