

Poutō Peninsula

Greville's Lagoon (Poutō), NRC Lake No. 295.



Greville's Lagoon. Photo from the east, showing the steep-sided fully fenced dune lake margins. (Photo: Paul Champion 17 September 2018).

| Summary | | Greville's Lagoon | |
|------------------------------------|---|-------------------|--|
| Surveyed: | 2005 and 2018. | | |
| Overall ranking: | Moderate: A fully fenced lake with native submerged vegetation, but with pest plants alligator weed (<i>Alternanthera philoxeroides</i>) and dense areas of African feather grass (<i>Cenchrus macrourus</i>) impacting on the emergent zone and lake catchment. | | |
| Threats: | Difficulty of access makes likelihood of pest plant introduction low, but a major impact could result should introduction occur. Catchment impacts on water quality are unlikely to change in the immediate future. | | |
| Management recommendations: | No monitoring of submerged vegetation is recommended. | | |

Description

This dune lake (1674139E; 6011706N) is 2.6 ha in area and 9.8 m in depth, fully fenced, with a steep-sided catchment comprised of regenerating coastal scrub and pampas, also heavily impacted by the terrestrial weed African feather grass (*Cenchrus macrourus*). Some plantings are evident on the north-west dune face (e.g., the Chatham Island *Corokia macrocarpa*). Access to the lake is across 3 km of steep private farmland and access to the lake perimeter by vehicle not possible.



Figure 3-8: Flowerhead and plants of African feather grass (*Cenchrus macrourus*) on the margin of Greville's Lagoon. (Photo: Paul Champion 17 September 2018).

Wetland vegetation

Kuta (*Eleocharis sphacelata*) and raupo (*Typha orientalis*) were the dominant emergent vegetation, with associated *Schoenoplectus tabernaemontani*. This vegetation was continuous, but due to the steep-sided nature of the lake, only occupied a narrow <5 m band to 1.8 m deep apart from the inlet stream which was obstructed by a n emergent mat of these species and African feather grass. The pest plant alligator weed (*Alternanthera philoxeroides*) was abundant at the western end of the lake, forming floating mats amongst raupo.

Submerged vegetation

No turf plants were found, with the steep lake edges failing to provide suitable habitat. Tall-growing native species *Potamogeton ochreatus* and *P. cheesemanii*, were recorded growing in low covers throughout the profiles from the fringe of emergent to a maximum of 4.3 m deep. Charophyte meadows of *Nitella* sp. aff. *cristata* and some *Chara australis* were present to 4.1 m depth. The invasive *Utricularia gibba* occurred at low covers within the emergent vegetation.

LakeSPI

Table 3-2: LakeSPI results for Greville's Lagoon. LakeSPI Indices expressed as a percentage of lake maximum potential.

| Survey Date | Status | LakeSPI % | Native Condition % | Invasive Impact % |
|----------------|--------|-----------|--------------------|-------------------|
| September 2018 | High | 63% | 52% | 20% |

Greville's Lagoon is categorised as being in high ecological condition with a LakeSPI Index of 63%, with well-developed native vegetation with slight impact from *U. gibba*.

Water birds

This isolated and inaccessible lake provides good habitat for water birds, although the steep nature of the catchment reduces the extent of emergent vegetation around much of the lake. The 2018

survey recorded black swan (*Cygnus atratus*), paradise shelduck (*Tadorna variegata*), mallard (*Anas platyrhynchos*), dabchick (*Poliocephalus rufopectus*), little black shag (*Phalacrocorax sulcirostris*) and bittern (*Botaurus poiciloptilus*) from this lake. The introduced Australian golden bell frogs (*Ranoidea aurea*) were heard and seen around the lake margins.

Fish

No fish were recorded during the survey.

Aquatic invertebrates

No submerged invertebrates were recorded during the survey.

Endangered species

Bittern are rated as Nationally Critical and dabchick have been assessed as At Risk Recovering.

Lake Ecological Value

An ecological value rating of 7 “Moderate” was assigned to Greville’s Lagoon based on the predominantly native submerged vegetation and charophyte meadows, but low species diversity and buffering due to the steep nature of the catchment.

Threats

The difficult access makes the likelihood of pest plant introduction low, but a major impact could result should introduction occur. Catchment impacts on water quality are unlikely to change in the immediate future.

Management recommendations

The margins of Greville’s Lagoon have recently been retired from grazing and planting has been undertaken. Alligator weed is well established at this site. No regular monitoring is recommended.