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DUNEDIN



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Dear Sir/Madam

Otago Fish and Game Council v Otago Regional Council Proposed Plan Change 2 - Regionally Significant Wetlands

1. On 25 June we served the Otago Regional Council and all submitters with Fish and Game's appeal.
2. It has been brought to our attention that we omitted to attach appendices that form part of the relief sought in the appeal.
3. We therefore **attach** appendices 1 and 2 that relate to the relief sought in the appeal.
4. Please do not hesitate to contact the writer if you have any queries.

Yours faithfully
Anderson Lloyd

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9. Schedule of significant wetlands

This schedule identifies Otago's significant wetlands in conjunction with Maps F1-F60. The schedule identifies the Type A and Type B values for each wetland. The objective of this Plan is to maintain or enhance the identified values through the management of water use and land use activities.

The values identified in the schedule include:

- A1 Habitat for nationally or internationally rare or threatened species or communities;
 - A2 Critical habitat for the life cycles of indigenous fauna which are dependent on wetlands;
 - A3 High diversity of habitat types;
 - A4 Wetland with a high degree of naturalness;
 - A5 Wetland scarce in Otago in terms of its ecological or physical character; and
 - A6 Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.
-
- B1 Wetland with high diversity of indigenous flora and fauna;
 - B2 Wetland which is regionally significant habitat for waterfowl; and
 - B3 Performing a hydrological function including maintaining water quality or low flows, or reducing flood flows.

Note: Criteria A1-A6 represent the values identified in Policy 10.4.1, while B1-B3 represent the values identified in Policy 10.4.3 of this Plan (see Chapter 10).

SCHEDULE 9: SIGNIFICANT WETLANDS

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SCHEDULE 9: SIGNIFICANT WETLANDS

Akatore Creek (Map F46)

Physical Description: Extensive area of saltmarsh and swamp above coastal marine area south of Akatore Creek. Altitude 5-10m.

Wetland Value	Value Type
A high degree of naturalness	A4
Scarce wetland type; a complete sequence of indigenous vegetation from the high tide mark through saltmarsh and flax to tall <i>Leptospermum - Carmichaelia - Olearia</i> scrub. Scrub considered an intrinsic part of the wetland and the only example of its type in the Ecological Region.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

All Day Bay Lagoon (Map F29)

Physical Description: Brackish water lagoon with swampy rush, sedge and succulent herb margins. Protected by QEII National Trust Open Space Covenant since 1993. A Management Statement was prepared in 1994. Area 10 ha.

Wetland Value	Value Type
High diversity of fauna. Habitat for shoveller and grey ducks, grey teal, oyster catcher, pied and black stilt. Also visited by royal spoonbill, glossy ibis and white heron.	B1

Aramoana Salt Marsh (Upper) (Map F39)

Physical Description: Upper saltmarsh and flax-dominated swamp areas, above the coastal marine area at Aramoana.

Wetland Value	Value Type
High degree of naturalness. Saltmarsh is largely intact with a complete vegetation sequence from tidal to dryland - a feature which most other saltmarshes in Otago no longer retain, as the highest part of the sequence has usually been reclaimed or otherwise destroyed. There is also no <i>Spartina</i> at Aramoana.	A4
Scarce type of wetland. The saltmarsh grades into a jointed rush <i>Leptocarpus similis</i> - saltmarsh ribbonwood <i>Plagianthus divaricatus</i> community. Beyond the salt influence, some of the wet dune hollows (known as "slacks") contain a swamp variously dominated by the tall native flax <i>Phormium tenax</i> , and by native rush and sedge communities.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Belmont Saline Management Area (Map F19)

Physical Description: Salt pan area on low terrace near Belmont. Included in 21 ha Belmont Saline Area Reserve. Altitude 395 m.

Wetland Value	Value Type
Wetland scarce in terms of ecological character; one of only two sites at which the salt tolerant plant <i>Sarcocornia quinqueflora</i> is recorded in Central Otago. Other saline-soil plants present and a distinctive salt-adapted moth fauna.	A5

SCHEDULE 9: SIGNIFICANT WETLANDS

Big Boggy and Little Boggy Wetlands (Map F3)

Physical Description: A spring-fed lagoon (with flax-covered islands) and a small raupo-fringed pond on the Upper Matukituki River flats, Western Otago. Altitude 305m.

Wetland Value	Value Type
Presence of threatened banded dotterel <i>Charadrius bicinctus bicinctus</i> .	A1
High diversity of habitat types. Important feeding and breeding sites for waterfowl and wading birds including paradise shelduck, grey duck (breeding), pukeko and pied stilt. South Island pied oystercatcher, white faced heron and marsh crake also use the wetland.	B1
High degree of naturalness. Largely unmodified wetland system which is self-sustaining because of its spring-fed character.	A4

Black Swamp (Map F48)

Physical Description: A cushion-plant bog with large peat dome, wire rush, sedges, herbs and shrubs, 14 km northwest of Milton. Black Swamp Conservation Area administered by Department of Conservation covers part of the bog. Area 2.5 ha.

Wetland Value	Value Type
Scarce wetland type; very little of this type of wetland left in the Otago Region.	A5

Blackcleugh Burn Wetlands (Map F47)

Physical Description: Several small areas of copper tussock wetlands.

Wetland Value	Value Type
High species diversity; copper tussock and a wide range of shrubs, herbs and invertebrate species	B1

Blackman's Saline Management Area (Map F9)

Physical Description: A small saline area on Earnscleugh Station. Altitude 320m.

Wetland Value	Value Type
Presence of the threatened species <i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i> . A large area of <i>Myosurus</i> surrounds the bare salty area.	A1
Scarce wetland type. An extensive community of salt tolerant plants including <i>Atriplex b Buchananii</i> . Distinctive lepidoptera and moth fauna associated with salty soils and salt tolerant plants. One of few saline sites in the region.	A5

SCHEDULE 9: SIGNIFICANT WETLANDS

Bungtown Swamp (Map F41)

Physical Description: A small area of swamp, including a peat dome. Administered by the Department of Conservation as a scientific reserve.

Wetland Value	Value Type
Scarce type of wetland; raised peat dome with <i>Sphagnum</i> , wire rush, bog pine and <i>Hebe</i> sp. growing on it.	A5

Catlins River Wetland (Map F58)

Physical Description: A large area of shrub wetland, with kahikatea - silver beech remnants, on each side of the lower Catlins River. Area 100 ha. Altitude 5 m.

Wetland Value	Value Type
Wetland scarce in region in terms of its physical/ecological character.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6
High diversity of flora.	B1

Chapman Road Saline Area (Map F10)

Physical Description: A small saline area near Alexandra. Altitude 150m. A scientific reserve (8.4 ha). Type site for Manorburn soil.

Wetland Value	Value Type
Presence of threatened plants <i>Lepidium kirkii</i> , <i>Isolepis basilaris</i> and <i>Puccinellia</i> 'Central Otago'.	A1
Scarce type of wetland. Salt tolerant plants including <i>Apium filiforme</i> , <i>Samolus repens</i> (one of only two inland sites) in shallow small grassy gully along with <i>Juncus gerardii</i> , <i>Atriplex buchananii</i> and <i>Puccinellia</i> spp. (best area of inland salt grasses, 4 species, one of which is endemic). <i>Lepidium kirkii</i> grows on a salty hillslope at the southeast corner. Distinctive saline soil moth fauna.	A5

Clutha Mouth Lagoon (Map F54)

Physical Description: Old river channel at mouth of Clutha River/Mata-Au.

Wetland Value	Value Type
Presence of threatened banded dotterel <i>Charadrius bicinctus bicinctus</i> .	A1
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6
An important loafing, roosting and feeding area for a variety of waders (eg banded dotterel, pied stilt and pectoral sandpiper) and waterfowl (grey teal, shoveller duck).	B2

SCHEDULE 9: SIGNIFICANT WETLANDS

Conroy's Dam Saline Management Area (Map F10)

Physical Description: Salt pan on planar valley footslope adjacent to Conroy's dam. Part of 17 ha Conroy's Dam Reserve which includes the 15 ha Conroy's Dam impoundment. Altitude 280m.

Wetland Value	Value Type
Presence of the threatened plants <i>Lepidium kirkii</i> , and <i>Crassula tetramera</i> .	A1
Scarce wetland type. One of few truly saline soil types (very high conductivity), and alkaline. Distinctive salt-adapted moth fauna present.	A5

Conroy's Road Saline Areas (Map F10)

Physical Description: Small salt pan areas to the east of the intersection of Conroy's Road and Shepherd Station Road, near Alexandra.

Wetland Value	Value Type
The threatened species <i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i> , <i>Puccinellia raroflorens</i> (type locality).	A1
Scarce wetland type; salt tolerant plants, an endemic stonefly and some uncommon moths (see Grove 1994, p73).	A5

Devils Bridge Wetland (Map F28)

Physical Description: Previously an ephemeral lake, after installation of a weir this area has become a permanent lagoon protected by a QEII covenant. It provides important habitat for many wetland bird species and is one of the few habitats of this type in North Otago.

Wetland Value	Value Type
High diversity of fauna. Habitat for marsh crake, banded rail, Australian coot, NZ scaup, white heron, white faced heron, pied stilt, grey teal, black swan, pukeko and others.	B1

Diamond Lake/Earnslaw Burn Wetland Management Area (Map F5)

Physical Description: Swampland adjacent to Diamond Lake and Lake Reid in Rees River Catchment, 12km north of Glenorchy. Administered by Department of Conservation as Diamond Lake/Lake Reid Wildlife Management Reserve. Altitude 330-350m.

Wetland Value	Value Type
Habitat for threatened banded dotterel and black-fronted tern.	A1
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6
High diversity of fauna. Provides nesting and feeding habitat for paradise ducks, black swan, pied stilt, black-backed gull, South Island pied oystercatcher and shags.	B1

SCHEDULE 9: SIGNIFICANT WETLANDS

Dingle Lagoon (Map F2)

Physical Description: The margins of a shallow lake.

Wetland Value	Value Type
Regionally significant habitat for waterfowl.	B2

Dunard Saline Management Area (Map F15)

Physical Description: Saline area on flat terrace on Moutere Station. Altitude 330m.

Wetland Value	Value Type
Scarce wetland type; native salt tolerant plants including <i>Puccinellia</i> sp., <i>Atriplex buchananii</i> and <i>Ceratocephalus pungens</i> , the native herb <i>Acaenia buchananii</i> plus the threatened herb <i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i> .	A5

Dunvegan Pond (Map F49)

Physical Description: Small pond on valley floor.

Wetland Value	Value Type
Habitat for threatened Australasian bittern <i>Botaurus poiciloptilus</i> .	A1

False Islet Wetland Management Area (Map F57)

Physical Description: Moist hollow on sandflats behind foredunes.

Wetland Value	Value Type
Presence of the threatened plant species <i>Mazus</i> 'False Islet' and the "insufficiently known" species <i>Libertia peregrinans</i> .	A1

Fortification Creek Wetland Management Area (Map F22)

Physical Description: An extensive wetland area covering the slow moving meandering lower reaches of Fortification Stream and the Teviot River, associated oxbow lakes and ponds, and adjacent sedge and red tussock wetlands on the alluvial valley floor in an open flat basin of the Upland Plateau land unit. Also covers the swamps at the inlets to Lake Onslow.

Wetland Value	Value Type
Habitat for threatened banded dotterel <i>Charadrius bicinctus bicinctus</i> . The threatened plant species <i>Cardamine</i> 'tarn' and <i>Ranunculus ternatifolius</i> also present.	A1
Scarce wetland type. One of the last remaining relatively uniform areas of red tussock wetland combined with meandering streams.	A5
Regionally significant habitat for waterfowl.	B2

SCHEDULE 9: SIGNIFICANT WETLANDS

Galloway No 1 Saline Area (Map F16)

Physical Description: Saline site on high terraces on true left of the Manuherikia River at the southern end of the Raggedy Range. Altitude 220-350m.

The site contains a fully representative Lepidoptera fauna of saline soils and salt tolerant vegetation of Central Otago. Several uncommon insects occur, feeding on the salt tolerant plants. A rare grasshopper is found on the rocky ground above the saline area (Patrick 1989).

Wetland Value	Value Type
The only know location of <i>Lepidium sisymbrioides</i> subsp. <i>matau</i> . <i>Lepidium kirkii</i> and other salt-tolerant species are found at the site.	A1

Galloway No 2 Saline Area (Map F16)

Physical Description: A saline site approximately 1 km to the east of the Galloway No. 1 site, adjacent to the Crawford Hills Road.

Wetland Value	Value Type
The threatened salt tolerant plant <i>Lepidium kirkii</i> is present, along with populations of <i>Plantago coronopus</i> and <i>Atriplex buechananii</i> . Also the rare grasshopper <i>Sigaus minutus</i> .	A1

Glenorchy Lagoon (Map F5)

Physical Description: Lagoon immediately north of Glenorchy. Administered by Department of Conservation as a Wildlife Management Reserve.

Wetland Value	Value Type
Regionally significant habitat for waterfowl and swamp birds, including paradise/mallard/grey ducks, black swan, grey teal, pukeko and oystercatcher.	B2

Glyn Wye Wetland Management Area (Map F23)

Physical Description: Medium turf ephemeral tarns on broad ridge crest, east of Middlemarch. Cover approx 10% of 70 ha area. Altitude 300 - 320m.

Wetland Value	Value Type
Tarns contain three threatened herbaceous species: <i>Cardamine</i> 'tarn' which is listed as endangered, and <i>Gratiola nana</i> and <i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i> which are listed as rare (Cameron <i>et al</i> 1995). Occurrence of <i>Pratia perpusilla</i> , locally rare within Macraes Ecological District	A1
High diversity of indigenous rushes, herbs and other species. The best and most extensive examples of medium turf ephemeral tarns within the Fault Block Ridges land system (see Bibby 1997 for details).	B1

SCHEDULE 9: SIGNIFICANT WETLANDS

Goodwood Saltmarsh (Map F33)

Physical Description: Saltmarsh above coastal marine area near mouth of Pleasant River.

Wetland Value	Value Type
Scarce wetland type; saltmarsh community with <i>Sarcocornia quinqueflora</i> (glasswort), <i>Puccinellia</i> spp. <i>Atriplex</i> spp. <i>Selliera radicans</i> , <i>Samolus repens</i> and jointed rush.	A5

Great Moss Swamp (Map F21)

Physical Description: Remnant of previously more extensive 500 ha swamp flooded by the Logan Burn Reservoir. Altitude 820m. Areas of red and silver tussock and sedge tussock *Schoenus pauciflorus* and *Sphagnum squarrosum*. One of few remaining subalpine swamp areas in the Rock and Pillar Ecological District.

Wetland Value	Value Type
Presence of threatened plant species <i>Deschampsia caespitosa</i> and <i>Carex secta</i> var. <i>tenuiculmus</i>	A1

Hawksbury Lagoon (Map F34)

Physical Description: A shallow fresh-brackish water lagoon at the mouth of the Hawksbury River, adjacent to the town of Waikouaiti. Little tidal influence within the lagoon as a causeway along the channel entrance restricts the entry of seawater. Most of the lagoon is part of the Hawksbury Wildlife Reserve. An adjacent lagoon which is not included within the wetland, is identified as a Coastal Protection Area within the Regional Plan: Coast. Area 63 ha. Altitude 0 - 2m.

Wetland Value	Value Type
The wetland is of cultural importance to Kai Tahu as a mahika kai site where fish (especially eels and inanga) and waterfowl were traditionally harvested.	A6
High diversity of bird and fish life, including the following species: white heron, white-faced heron, royal spoonbill, pied stilt, black swan, grey teal, NZ shoveller, grey duck, arctic waders, eels and galaxiids.	B1
Regionally significant habitat for waterfowl.	B2

Hoopers Inlet Swamp (Map F39)

Physical Description: Saltmarsh and swamp area behind Allans Beach on eastern side of Hooper's Inlet. A Department of Conservation Reserve.

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Wetland Value	Value Type
Scarce wetland type; sequence from saltmarsh community to fresh water swamps dominated by <i>Carex coriacea</i> , <i>C. virgata</i> , <i>C. gaudichaudiana</i> and <i>Isolepis nodosa</i> .	A5

Hukihuki Swamp (Map F60)

Physical Description: A coastal rush/sedge/podocarp swamp. Area 66 ha. Altitude 1m.

Wetland Value	Value Type
A diverse and interesting assemblage of wetland plant species, including <i>Leptocarpus similis</i> (jointed wire rush), <i>Carex</i> sp. and <i>Juncus</i> sp., flax and <i>Dacrydium cupressinum</i> (rimu).	B1

Kaikorai Lagoon (Map F38)

Physical Description: A brackish water lagoon and extensive adjacent marsh areas at the mouth of the Kaikorai Stream, southeast of Dunedin City. Area 100 ha approximately. Altitude 0-1m.

A range of marsh communities from brackish lagoon to saline lagoon. Vegetation includes jointed rush/saltmarsh ribbonwood rushland, herbfield communities in extensive marsh areas and a narrow strip of herbfield communities between the low bank and the lagoon in the Brighton Road area.

Wetland Value	Value Type
Habitat for threatened Australasian bittern <i>Botaurus poiciloptilus</i> and the banded dotterel <i>Charadrius bicinctus bicinctus</i> .	A1
The area is important as a refuge, feeding and breeding areas for a wide range of wetland birds. Birds that breed in the area include, mallard, shoveller duck, black swan, pukeko, pied stilts and black-backed gull. Shags, gulls, royal spoonbill, terns, white faced herons, oystercatchers and paradise duck also use the area. The marsh crane has also been observed here.	A2
Scarce wetland type; saltmarsh and <i>Leptocarpus</i> (rush) marsh.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Kemps Road Lagoon (Map F31)

Physical Description: A shallow lagoon immediately inland from the mouth of Kemps Road Creek. Area 10 ha. Altitude 15m.

Wetland Value	Value Type
Regionally significant waterfowl and wader habitat. Breeding and feeding area for a number of species including paradise, shoveller and grey ducks, grey teal, pied stilt, black swan and spur winged plover.	B2

SCHEDULE 9: SIGNIFICANT WETLANDS

Kirkwoods Creek Wetland Management Area (Map F4)

Physical Description: An area of valley floor boglands (tussock bogs and cushion bogs) within an altitudinal sequence of vegetation from the crest of the Hawkdun Range to the valley floor of Kirkwoods Creek, a tributary of the Manuherikia River. Altitude 740 - 1876 m.

Wetland Value	Value Type
Scarce wetland types; regionally threatened plant communities. The red tussock and cushion (sphagnum) bog communities are described by Grove (1992).	A5
The area supports a wide range of native species in a variety of habitats.	B1

Lake Hayes Margin (Map F6)

Physical Description: Southern and western margin of a shallow, lowland, glacial lake near Queenstown. Altitude 325m. Covered in part by a Recreation Reserve and Wildlife Management Reserve (53.68 ha), administered by the Department of Conservation. The lake and its shores have the status of Wildlife Refuge.

Wetland Value	Value Type
Habitat for threatened native fish species the Koaro (<i>Galaxias brevipinnis</i>) and for threatened swamp birds Australasian bittern <i>Botaurus poiciloptilus</i> and great crested grebe <i>Podiceps cristatus australis</i> .	A1
High species diversity. The lake supports a number of endemic bird species and is of special value as a breeding area for a variety of waterfowl, including paradise shelduck, grey duck, the New Zealand shoveller duck, the marsh crake and the Australian coot.	B1

Lake Tuakitoto Wetlands Complex (Map F51)

Physical Description: A large lowland lake and adjoining swamp, near the coast north of the Clutha River/Mata-Au Mouth. Fed from inflow of Lovell's Creek at northern end of wetland. Area approx 500 ha. Altitude 2m. Wetland owned as endowment land by the Otago Regional Council. Best remaining example of a previously widespread wetland type. Covered by a conservation notice.

Wetland Value	Value Type
Provides roosting, feeding and breeding habitat for the threatened Australasian bittern and banded dotterel. Also breeding area for the uncommon marsh and spotless crakes and South Island fernbird. Habitat for threatened giant kokopu, <i>Galaxias argenteus</i> . The threatened plant species <i>Urtica linearifolia</i> and <i>Isolepis basilaris</i> present on swamp margin.	A1
A diverse mosaic of vegetation types and wildlife habitats. Regionally and nationally important habitat for waterfowl, waders and swamp birds. Supports a significant proportion of the national population of mallard and NZ shoveller ducks, grey teal and black swan. All these species breed here. Considered nationally important as a fresh water fishery habitat, supporting long and short-finned eel, inanga and common bully populations as well as the giant kokopu (Davis 1987).	A3

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Wetland Value	Value Type
Wetland highly valued by Kai Tahu for its historical associations, and as a traditional food gathering area.	A6
An exceptionally high diversity of bird life present, a reflection of the high habitat diversity (above). Some 50 species of bird recorded.	B1
Lake Tuakitoto and surrounding wetlands perform a valuable hydrological function. Serves as a flood ponding area and is an integral part of the Lower Clutha Flood Control and Drainage Scheme.	B3

Lamb Hill Wetlands (Map F35)

Physical Description: Areas of copper tussock wetland on gully floors in the southern part of Macraes Ecological District. Altitude 600 - 764m.

Wetland Value	Value Type
The moist copper tussock wetland, although modified, contains a wide variety of wetland species. Copper tussock, toetoe, the sedge <i>Purei</i> and the exotic rush <i>Juncus effusus</i> make up the canopy and various mosses, liverworts, rushes and herbs make up the ground layer (see Bibby 1997, p121, for full description).	B1

Lenz Reserve Wetlands (Map F59)

Physical Description: Swamp/bog wetlands within the Lenz Private Scenic Reserve, 34km south of Owaka, in the Fleming River Valley. Area 100 ha. Altitude 20-36m.

Wetland Value	Value Type
Scarce wetland types. An intact peat dome (sphagnum moss 2m above forest floor) surrounded by forest and a remnant kahikatea-rimu swamp forest.	A5

Lower Coutts Gully Swamp (Map F45)

Physical Description: Fresh-brackish water swamp near mouth of Duckbend Creek, southwest of mouth of Taieri River. A wildlife management reserve in part (Sawmill Wildlife Management Reserve) and part in private ownership. Area 40 ha. Altitude 1-10m.

Wetland Value	Value Type
Australasian Bittern have been recorded at this site.	A1
An interesting and diverse variety of wetland plant species.	B1
Regionally significant habitat for waterfowl. Pied stilt and spur winged plover breed in the area.	B2

SCHEDULE 9: SIGNIFICANT WETLANDS

Maclennan River Podocarp Swamp (Map F56)

Physical Description: Riparian kahikatea/silver beech forest and *Carex secta* swamp adjacent to Maclennan River. Includes the Maclennan River Scenic Reserve and part of the Tahakopa Bay Scenic Reserve.

Wetland Value	Value Type
High degree of naturalness.	A4
Wetland scarce in Region in terms of its ecological character. Rare example of riparian kahikatea/silver beech forest and the largest area of <i>Carex secta</i> swamp under reserve status in Otago. High regional scientific value.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Makarora Flat Wetland (Map F1)

Physical Description: *Carex/Juncus gregiflorus* wetland on left bank of Makarora River.

Wetland Value	Value Type
Regionally significant waterfowl habitat. Important feeding and sheltering habitat for shoveller and grey ducks, grey teal and pukeko. Also used by waders (pied stilt, oystercatcher).	B2

Matukituki Valley Wetland Management Area (Map F3)

Physical Description: The area comprises three remnants of a large wetland system that once covered much of the Matukituki Valley: the West Wanaka Lagoons, the Narrow Spur Wetland and the Broad Spur-Tongue Spur Wetland. Swamps, bogs and open water together represent the largest complex of lowland wetlands in the Lakes Ecological Region. The three wetlands support similar floristic and faunistic values and retain much of their original character.

Wetland Value	Value Type
Habitat for the threatened Australasian bittern.	A1
Critical feeding and nesting area for a wide variety of waterfowl and waders including the NZ shoveller duck, crested grebe, pied stilt, black shag, and black swan.	A2
High diversity of habitat types.	A3
High degree of naturalness.	A4
Wetlands highly valued by Kai Tahu for presence of long-finned eels.	A6
High diversity of native birds, insects, aquatic and plant life.	B1

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Maungatua Summit Wetland Management Area (Map F40)

Physical Description: Area containing cushion herb vegetation, *Sphagnum* bogs, flushes and small tarns on the summit and western slopes of Mt. Maungatua overlooking Taieri Plains, 24 km west of Dunedin. Altitude 800 - 890 m.

Wetland Value	Value Type
Scarce wetland type. Although highly modified by fires, grazing and trampling, the Maungatua wetlands are the only remaining examples of high altitude wetlands on the eastern side of the Waipori Ecological District. Cushion-forming plants are confined to poorly drained areas on the summit ridge. Scattered tarns are surrounded by <i>Sphagnum</i> spp. and sedges.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Moa Creek Saline Area (Map F17)

Physical Description: A small saline site on upper reaches of a broad alluvial plain to the east of Raggedy Range, adjacent to Crawford Hills Road. Altitude 450 - 460m.

Wetland Value	Value Type
Threatened plant species <i>Plantago spathulata</i> and <i>Selliera radicans</i> present.	A1

Moke Lake Bog (Map F7)

Physical Description: Bog with rushes, sedges, herbs and sphagnum mounds at southern end of montane lake, near Queenstown. Area 15 ha. Altitude 525m.

Wetland Value	Value Type
Presence of threatened plant species <i>Triglochin palustris</i> .	A1
Cultural sites of value to Kai Tahu are present.	A6

Murray's Road Saline Management Area (Map F25)

Physical Description: A salt pan on gently sloping surface of the Tor Plateau land system, the pan grading into a small wet area at one end. Area approx 2 ha. Altitude 190m.

Wetland Value	Value Type
Scarce wetland type. This is the only known salt pan within the Macraes Ecological District. The salt pan is a mosaic of bare exposed saline soil and the native salt tolerant plants <i>Apium</i> sp. and <i>Selliera microphylla</i> . The wet area contains native sedges and rushes (see Bibby 1997, p117).	A5

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Nenthorn Ridge Wetland Management Area (Map F27)

Physical Description: A wide variety of wetland types including a low turf ephemeral tarn, a medium turf ephemeral tarn, *Purei* wetlands, pools, bogs and moist red tussock grasslands in a relatively small area (112 ha) on the upper slope and ridge crests of the Rolling Hills land system. Altitude 540 - 570m.

Wetland Value	Value Type
The threatened herb <i>Gratiola nana</i> is present in the low turf ephemeral tarn at Emerald Creek, one of only 23 known locations throughout the South Island (Johnson 1993). Two locally rare species <i>Elatine gratioloides</i> and <i>Glossostigma</i> sp. occur in the medium turf ephemeral tarns.	A1
A high diversity of wetland habitat types present.	A3
A very diverse range of wetland vegetation, a distinctive insect fauna and a diverse and relatively abundant waterfowl fauna (refer Bibby 1997, page 86-88 for details of species present, and Johnson 1993).	B1
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Nevis Plateau Wetland Management Area (Map F13)

Physical Description: The Nevis Plateau is dominated by the rectangularly-incised course of the Roaring Lion Creek. The Plateau contains areas of low relief with wetland depressions and extensive bogs. Altitude 1200m - 1840m.

Wetland Value	Value Type
High degree of naturalness, particularly in higher altitude areas.	A4

Note: These values have been recognised by the Water Conservation (Kawarau) Order 1997.

Okia Flat Wetland Management Area (Map F39)

Physical Description: Dune hollows (permanently or periodically wet), wetland turf, bogs and ponds within the Okia Reserve, Okia Flat, Otago Peninsula.

The best example of dune hollow vegetation in the Otago Coast Ecological Region.

Wetland Value	Value Type
Very diverse native wetland vegetation within the dune hollows (described by Johnson 1993). Some paddocks are of special interest in having sphagnum moss, the only sphagnum known on Otago Peninsula, and a species <i>Sphagnum novo-zelandicum</i> which is generally uncommon in New Zealand. The bog sedges <i>Baumea rubiginosa</i> and <i>B. tenax</i> grow with the sphagnum.	B1
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

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Otanomomo Tuatiki Reserve (Map F52)

Physical Description: A small pond and swamp area (0.5 ha) within the Otanomomo Tuatiki Scientific Reserve (36.45 ha). The only reserved stand of alluvial plain podocarp forest in the Otago Land District.

Wetland Value	Value Type
High degree of naturalness. Native wetland vegetation in excellent condition. An important sequence from wetland vegetation through to native bush.	A4

Otokia Wetlands (Map F43)

Physical Description: Rush and sedge swamp adjacent to SH 1. Water levels fluctuate throughout the year. Adjacent land grazed. Area 10 ha.

Wetland Value	Value Type
Regionally significant breeding area for waterfowl, including NZ shoveller duck, pukeko, pied stilt and spur winged plover.	B2
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Paddys Rock Ephemeral Tarn (Map F24)

Physical Description: A low turf ephemeral tarn on a broad ridge crest within the Rolling Hills land system. Altitude 600m.

Wetland Value	Value Type
Presence of threatened plant <i>Tetrachondra hamiltonii</i> on margin of tarn.	A1
High plant diversity. The tarn contains the native herb <i>Hypsela rivalis</i> , the sedge <i>Carex gaudichaudiana</i> and the rush <i>Eleocharis acuta</i> .	B1

Papatowai Scenic Reserve Wetland (Map F56)

Physical Description: Estuarine swamp and saltmarsh above the coastal marine area on south side of Tahakopa River, adjacent to Papatowai township.

Wetland Value	Value Type
Scarce wetland type. A large area of <i>Leptocarpus similis</i> (rush) swamp and adjacent saltmarsh with interesting plant succession from saltmarsh to swamp to matai/rimu forest.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

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Patearoa Saline Area (Map F19)

Physical Description: A moderately large saline site near the Upper Taieri River consisting of small bare salty areas at the base of surrounding hillsides. On farm land adjacent to Styx-Patearoa Road. Altitude 395m. Protected by QEII National Trust Open Space Covenant (4.55 ha.). A Management Statement was prepared in 1995.

Wetland Value	Value Type
Presence of threatened plant species <i>Myosurus minimus</i> subsp. <i>novae zelandiae</i>	A1
High diversity of salt tolerant plants and moths (see Grove 1994, p59), its combined botanical and entomological values making it the most important example of such habitat in Central Otago and New Zealand.	B1

Pioneer Wetland Management Area (Map F41)

Physical Description: Red tussock wetland, swamps and ponds on the floodplain of the upper Pioneer Stream, south of the western arm of Lake Mahinerangi. Site of old gold mining and partly Historic Reserve administered by Department of Conservation. Altitude 450 - 500 m.

Wetland Value	Value Type
Recorded sitings of the threatened Australasian bittern <i>Botaurus poiciloptilus</i> and the fernbird <i>Bowdleria punctata punctata</i> .	A1
Diverse plant communities. In swampy areas on valley floor <i>Carex gaudichaudiana</i> sedgeland occurs with exotic grasses, rushes and some large <i>Sphagnum</i> moss cushions and other cushion species.	B1

Puerua Wetland (Map F55)

Physical Description: A moderately large rush and sedge swamp area near the mouth of the Clutha River/Mata-Au. Administered by the Department of Conservation as the Puerua Wildlife Management Reserve. Area 200 ha. Altitude 5m.

Wetland Value	Value Type
Regionally significant habitat for waterfowl (NZ shoveller duck and grey teal), wading birds (pied stilt, godwit, spur winged plover), and swamp birds (pukeko, bittern, marsh and spotless crane). South Island fernbird also present.	B2

Red Bank Wetland Management Area (Map F27)

Physical Description: Copper tussock wetland and a low turf ephemeral tarn on the western ridge crest in the upper catchment of a tributary of the North Branch of the Waikouaiti River. Altitude 470 -645m.

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Wetland Value	Value Type
The threatened plant species <i>Isolepis basilaris</i> and <i>Myosurus minimus</i> subsp. <i>novae zelandiae</i> are present in the low turf ephemeral tarn.	A1
A high diversity of wetland species. A diverse and interesting aquatic insect fauna in seepages and creeks, including the brown caddis (<i>Psilochorema tautoru</i>).	B1

Rockdale Saline Area (Map F14)

Physical Description: Small saline site adjacent to Chatto Creek-Omakau Road. Altitude 270m.

Wetland Value	Value Type
Scarce wetland type. Many uncommon salt tolerant plants and insects. (see Grove 1994, p65).	A5

Schoolhouse Flat Wetland Area (Map F8)

Physical Description: Bog and flush area on valley floor.

Wetland Value	Value Type
Diverse flora and invertebrate fauna - several alpine invertebrate species, possibly dependent on wetlands, eg. the moths <i>Asaphodes oraria</i> and <i>A. helias</i> .	B1

Shag River Estuary Swamp (Map F32)

Physical Description: An area of saline swamp above coastal marine area at mouth of Shag River.

Wetland Value	Value Type
Scarce wetland type. Saltmarsh community with <i>Sarcocornia quinqueflora</i> (glasswort) jointed rush, and <i>Atriplex</i> spp.	A5
Wetland which is highly valued by Kai Tahu for mahika kai or other waahi taoka.	A6

Southern Garvie Mountains Wetland Management Area (Map F13)

Physical Description: A range of alpine wetland types, including peat bogs, pools, patterned mires and flushes on the Nevis Plateau. Part of the 'Nokomai wetlands' (the other part, to the south, being within the Nokomai Ecological District). Altitude 1300-1830m.

Wetland Value	Value Type
A high diversity of habitat types	A3
High degree of naturalness. These wetlands are the most extensive and spectacular in the Old Man Ecological District with dramatic contrasts between eastern glaciated and western non-glaciated (stringbog) systems.	A4
Scarce wetland type. Patterned mires are rare wetland types in the southern hemisphere (Mark <i>et al</i> , 1995).	A5
High species diversity.	B1

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Note: These values have been recognised by the Water Conservation (Kawarau) Order 1997.

Sutton Salt Lake Wetland Management Area (Map F26)

Physical Description: Salt Lake (near Sutton, 2 ha) is a shallow saline lake on the southern edge of the Strath Taieri Plain. Swampy margins with succulent herb, rush and sedge vegetation. Part of Sutton Salt Lake Scenic Reserve (142 ha) which embraces other tarns, seepages, grassland and shrubland communities. Altitude 250m.

Wetland Value	Value Type
Presence of threatened plant species <i>Gratiola nana</i> , <i>Isolepis basilaris</i> and <i>Crassula peduncularis</i> .	A1
Scarce wetland type. Sutton Salt Lake is New Zealand's only inland salt lake. The Lake has an important sequence of salt tolerant vegetation around its margin. Native plants include <i>Lilaeopsis ruthiana</i> , <i>Apium</i> n.sp, and <i>Chenopodium ambiguum</i> . A range of water birds and waders use the lake, feeding on the tiny shrimp-like organisms which occur there.	A5

Swampy Summit Wetland Area (Map F36)

Physical Description: Swampy areas and peat bogs with associated moss field, sedgeland and shrub communities on the flat plateau of Swampy Summit in the Silver Peaks area, west of Dunedin. Area 40 ha. Altitude 739m.

Wetland Value	Value Type
A high diversity of habitat types. Swampy Summit peat bogs and associated plant communities provide important habitat for South Island fernbird and other species.	A3

Tahakopa Bay Podocarp Swamp (Map F56)

Physical Description: Swamp forests within Tahakopa Bay Scenic Reserve, inland of Tahakopa Bay, between the lower MacLennan River and the coast.

Wetland Value	Value Type
Scarce wetland type. Areas of young podocarp swamp forest (with small areas of open water) and mixed podocarp - beech swamp forests, such as these, are now uncommon in the Otago Region.	A5

Tahakopa Peat Bog (Map F56)

Physical Description: A rush/sedge/flax/podocarp bog near mouth of Tahakopa River. Altitude 5m.

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Wetland Value	Value Type
Threatened Australasian bittern and fernbird recorded at this site.	A1
Active peat deposit (1.3 km ²) including peat dome.	A5
High wetland plant species diversity.	B1

Taieri River Mouth Wetland Management Area (Map F44)

Physical Description: An area of wetland including marsh, river terrace and gully floor plant communities on both sides of the Taieri River, about 3km from its mouth. Included in Taieri River Scenic Reserve, administered by the Department of Conservation. Area 10 ha. Altitude 10m.

Wetland Value	Value Type
High diversity of habitat types. The variety of plant communities within such a small area is remarkable and some are considered quite unique, eg. the marsh areas which have some salt and some fresh water marsh characteristics, and the small kahikatea-totara-matai-miro stand on the west river terrace.	A3

Tautuku Wetland Complex (Map F59)

Physical Description: A large area of wetlands, including Lake Wilkie, on the coastal terrace behind Tautuku Beach and part of the lower Tautuku River Valley. Area approx 100 ha. Altitude 0-350m.

Wetland Value	Value Type
A diverse assemblage of habitat types and plant communities including rush swamps, swampy river flats (with sedge, jointed rush, shrubs) and swampy riverside podocarp/kamahi/mixed broadleaf forest.	A3
Scarce wetland type. Lake Wilkie possesses an important example of a hydrach succession from <i>Eleocharis</i> at the Lake margin to mature podocarp-rata-kamahi forest. Bog lakes are unusual on the east coast of the South Island.	A5

Tokomairiro River Swamp (Map F50)

Physical Description: Areas of rush/sedge/flax fresh water swamp adjacent to the Tokomairiro Estuary and the main river channel landward of the coastal marine area boundary. Area 100 ha. The area south of Toko Mouth Road (27.5 ha.) has been Protected by QEII National Trust Open Space Covenant since 1993. A Management Statement was prepared in 1994.

Wetland Value	Value Type
Scarce wetland type. Scarce <i>Sarcocornia quinqueflora</i> saltmarsh community present.	A5
High species diversity. Habitat for waterfowl species including the mallard, grey and NZ shoveller duck, the grey teal and black swan. Links directly with the downstream estuarine area which provides habitat for the same species. Marsh crane and South Island fernbird also present.	B1

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Tomahawk Lagoon (Map F37)

Physical Description: Two shallow brackish water lagoons joined by a narrow channel and sharing a common sea outlet located on the outskirts of Dunedin, at the southern end of the Otago Peninsula. Sea outlet often blocked. Much of the area is managed by the Department of Conservation as a Wildlife Management Reserve. Area 33 ha. The Native Bush remnants along one third of the eastern boundary of the Western Lagoon, and the northeastern edge of the Eastern Lagoon are protected by QEII National Trust Open Space Covenant since 1995. A management Plan has been drawn up.

Wetland Value	Value Type
Presence of threatened plant species <i>Isolepis basilaris</i> on margin of lagoon.	A1
Regionally significant habitat for waterfowl and waders. Species present include shoveller duck, black swan, marsh crake, spotless crake, pukeko, pied stilt, variable oystercatcher and the spur-winged plover. Part of chain of feeding habitats along coast. Used by migrating waders. Habitat for native fish and eels.	B2

Totara Creek Saline Management Area (Map F19)

Physical Description: Scattered saline areas lying along an old river terrace on the true left of Totara Creek. Adjacent to the boundary between Awatea and Linnburn Stations on Awatea Station Road.

Wetland Value	Value Type
Presence of the threatened plant <i>Triglochin palustre</i> .	A1
Scarce wetland type; high value.	A5
High plant diversity. A diverse assembly of salt tolerant plants including <i>Selliera microphylla</i> , <i>Sarcocornia quinqueflora</i> , <i>Samolus repens</i> , <i>Puccinellia</i> spp. and <i>Atriplex buchananii</i> .	B1

Trig Q Ephemeral Pool (Map F30)

Physical Description: Ephemeral Pool

Wetland Value	Value Type
Presence of threatened plant species <i>Crassula peduncularis</i> .	A1

Upper Taieri Wetlands Complex (Maps F18-F21)

Physical Description: The Upper Taieri Wetlands Complex consists of three sub-areas, the Styx (Paerau) Basin Wetlands, the Maniototo Basin Wetlands and Taieri Lake Wetlands. Altitude 300 - 550m. All three wetlands are on the floodplain of the Taieri River.

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The areas marked on these maps, except F18 (Inset 1), are predominantly in private ownership and much of this area comprises pasture land used for grazing. However, most of these pasture areas retain significant wetland values, depending on the season.

The Styx Basin wetlands consist of a scroll-plain landform of meanders, oxbows, old braids, backwaters and cut-offs, stretching from near Paerau to Canadian Hut. The area includes the 136 ha Serpentine Wildlife Management Reserve.

The Maniototo Basin Wetlands, downstream of the Styx Wetlands, are of similar landform. They include the 37.5 ha Eden Creek Wildlife Management Reserve and the 44 ha Halls Road Wildlife Management Reserve.

The Taieri Lake Wetlands lie adjacent to the Taieri River, downstream of the Maniototo Wetlands. They encompass part of the 187 ha Taieri Lake Recreation Reserve.

Wetland Value	Value Type
Habitat for several threatened species, including the nationally threatened Australasian bittern and the banded dotterel (Grove 1994, p52), and the threatened plant <i>Deschampsia caespitosa</i> .	A1
The area provides critical habitat for the lifecycles of many indigenous bird species.	A2
Very high diversity of habitat types, reflected in the presence of 52 bird species, 27 of which are dependent on the wetland to meet their specialised needs. Many of the species breed in the wetland (see Grove 1994, p51-53, for details).	A3
Scarce wetland type. The only scroll-plain in New Zealand, with a consequently unique combination of wetland habitats. Although the vegetation and form of the Upper Taieri Wetlands has been extensively modified by drainage, channelisation, the introduction of exotic species, grazing and other farming activities, they are the best remaining example of this type of wetland in the Otago Region. They also represent the only significant inland upland habitat of this type left in New Zealand.	A5
Valued by Kai Tahu as traditional mahika kai area.	A6
A very high species diversity, of both flora and fauna.	B1
Regionally important habitat for waterfowl. Breeding area for a large number of waterfowl species.	B2
Performs an important hydrological function in terms of ameliorating downstream flood peaks and low flows.	B3

Von Valley Wetland Management Area (Map F11 and F12)

Physical Description: A large area of wetlands (including tarns, kettle holes, restiad bogs, cushion bogs, rush and sedge swamps, moist depressions and seepages) west of Lake Wanaka in the Von Valley. Altitude 100 - 760 m.

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Wetland Value	Value Type
Presence of threatened plant species <i>Cardamine</i> 'tarn', <i>Oreomyrrhis colensoi</i> var <i>delicatula</i> , <i>Crassula multicaulis</i> , <i>Isolepis basilaris</i> , <i>Deschampsia caespitosa</i> , <i>Ranunculus ternatifolius</i> and <i>Brachyscome linearis</i> .	A1
High diversity of habitat types (see physical description above).	A3
Some of the wetlands are scarce in Otago Region terms of physical/ecological character.	A5
High diversity of flora (The botany of the kettleholes and their margins is described by Johnson 1993).	B1

Waikouaiti Estuary Wetland (Map F34)

Physical Description: Remnant saltmarsh above coastal marine area near mouth of Waikouaiti River. Also known as Merton's Swamp.

Wetland Value	Value Type
Scarce wetland type. Saltmarsh community with <i>Sarcocornia quinqueflora</i> (glasswort) and jointed rush.	A5

Waipori Boot Wetland (Map F42)

Physical Description: An old oxbow of the Taieri River. A wildlife management reserve under the administration of the Department of Conservation. Area 64 ha.

Wetland Value	Value Type
Habitat for threatened Australasian bittern, and the marsh crane.	A1
A high diversity of waterfowl species present. (Values are generally similar to those outlined for the Waipori/Waihola Wetlands Complex, below).	B1

Waipori/Waihola Wetlands Complex (Map F42)

Physical Description: The wetlands complex consists of two large shallow lakes, Waipori [220 ha] and Waihola [640 ha] and an extensive system of lagoons, ponds, vegetated islands, channels and swamps, situated on the lower Taieri Plain, 30km south-west of Dunedin. The Complex includes the 315 ha. Sinclair Wetlands which has been subject to a QEII National Trust Open Space Covenant since 1986. A Management Plan has been in place since that time. Inflows are from the Waipori River, the Meggatburn, Boundary Creek and several man made drains. The wetlands drain into the Waipori River, then into the Taieri River. Area >2000 ha. Altitude 10m.

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A total of 105 ha of the Complex is administered by the Department of Conservation as Wildlife Management Reserve (eg. McClaren's, Gillander's reserves) and marginal strip. See Department of Conservation (1996) for details of management and ownership. In 1995 the Clutha District Council accepted the requirement of the Minister of Conservation for a designation (as a Wildlife Management Area) over most of the wetland. The designation has now lapsed. In November 1996, the Department of Conservation released a Management Statement for the wetland.

Wetland Value	Value Type
Habitat for the threatened Australasian bittern <i>Botaurus poiciloptilus</i> , and threatened indigenous fish species the giant kokopu (<i>Galaxias argenteus</i>) and the banded kokopu (<i>Galaxias fasciatus</i>). Presence of the threatened plant species <i>Urtica linearifolia</i> and <i>Deschampsia caespitosa</i> .	A1
A very high diversity of habitat types (see physical description above). Internationally significant as water bird habitat (Department of Conservation 1993) and nationally important fish habitat (Davis 1987). The best remaining example of a lowland wetland remaining in Otago and one of the largest and most significant remaining in New Zealand.	A3
A high degree of naturalness, notwithstanding drainage activities, and the introduction of exotic species etc. A considerable proportion of the wetland is relatively undisturbed and the plant communities are largely native. A wide variety of native wetland species are present, specifically the native shrubland vegetation, jointed rush communities and back-swamp sedgeland present on the islands of the Waihola River delta. The presence of a sequence of different vegetation types adds to the botanical value (Cromarty & Scott 1995).	A4
Wetlands of this type and size are scarce in the Region and in New Zealand; this has implications for the conservation of species such as the Australasian bittern and the marsh and spotless crakes, which require large contiguous blocks of swampland in order to maintain viable populations.	A5
The wetlands are of historical and cultural importance to Kai Tahu. A site of mahika kai where eels are traditionally gathered. The wetlands are also highly valued as a source of flax.	A6
A very high diversity of flora and fauna, reflecting the diversity of habitats (above). Fifty five species of birds and 12 species of native fish recorded. Provides habitat for several regionally and locally rare plant and animal species, including the endemic fernbird (<i>Bowdleria punctata punctata</i>).	B1
Regionally important habitat for waterfowl, with counts of up to 10,000 ducks and swans. A major breeding and moulting site for black swan, paradise shelduck, mallard duck, grey duck, grey teal, NZ shoveller and NZ scaup.	B2
Performs a valuable hydrological function. Lakes Waipori and Waihola and associated swamps function as a flood ponding area for the lower Taieri Plain. Also play a significant role in maintaining adjacent watertables and downstream flows in summer via the gradual release of ponded water.	B3

Waitepeka Swamp (Map F53)

Physical Description: Three discrete areas of rush, sedge and flax swamp, beside the Puerua deviation channel, near the mouth of the Clutha River/Mata-Au. Part of the area to the west of the road (11 ha.) is protected by a QEII National Trust Open Space Covenant. Part of it is managed as a Wildlife Management Reserve by the Department of Conservation. Altitude 12m.

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Wetland Value	Value Type
Presence of threatened Australasian bittern.	A1
Regionally significant waterfowl habitat. Wading birds and swamp birds. South Island fernbird marsh crane and pukeko present.	B2

Welcome Creek (Map F30A)

Physical Description: Welcome Creek is a spring-fed stream with a small catchment dominated by pastoral land use, predominantly dairy farming. The stream has a variable riparian buffer dominated by pasture grass species and crack willow. The spring drains water from the lower Waitaki alluvium aquifer to the Waitaki River. The upstream (source spring), flow has been measured at 56 – 59 l/s. The lower site (near Waitaki River) flow ranges from 1121 – 1381 l/s. It is important to note that a major bywash point for the Lower Waitaki Irrigation Scheme contributes flow to Welcome Creek between the upper and lower sites at all times of year, this bywash may range in flow from 250 l/s in the non irrigation season to over 500 l/s during irrigation months. It is estimated that Welcome Creek flow at Ferry Road (between the upper and lower sites) has a base spring flow of about 450 l/s.

Groundwater seepage is predominantly from the lower Waitaki alluvium (irrigation scheme sourced groundwater). However, at lower reaches of Welcome Creek (at the lower site and below), it is possible for Waitaki River sourced groundwater to be providing some flow to the stream. There have been no observed Waitaki River channels providing direct flow to the stream. However, NZMS 260 Series Maps and aerials indicate some historic channels connecting to the lower reaches of the creek from the Waitaki River.

Welcome Creek has a diverse and healthy freshwater invertebrate community. It is a noted spawning site for *Salmo trutta* (brown trout) and *Oncorhynchus mykiss* (rainbow trout). It has a wide ranging native fishery, including species such as, *Gobiomorphus hubbsi* (bluegill bully), *Gobiomorphus breviceps* (upland bully), *Gobiomorphus cotidianus* (common bully), *Galaxias maculatus* (inanga), *Anguilla dieffenbachii* (longfin eel) and *Anguilla australis* (shortfin eel). Also *Neochanna burrowsius* (Canterbury mudfish) have also been located in wetland systems associated with the lower reaches of Welcome Creek, so far this is the only report of mudfish in the Otago province. This makes Welcome Creek one of the more diverse and regionally important streams with regard to fish species diversity present in Otago.

Wetland Value	Value Type
Spring fed wetland maintaining local water table in gravels.	A1, A2, B3

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Woodbine Wetland Area (Map F5)

Physical Description: Delta swamps and backwaters near mouth of Dart River/Te Awa Whakatipu.

Wetland Value	Value Type
High diversity of fauna. A wide variety of waterfowl and swamp birds present including paradise shelduck, and grey duck, black swan, grey teal, pukeko.	B1

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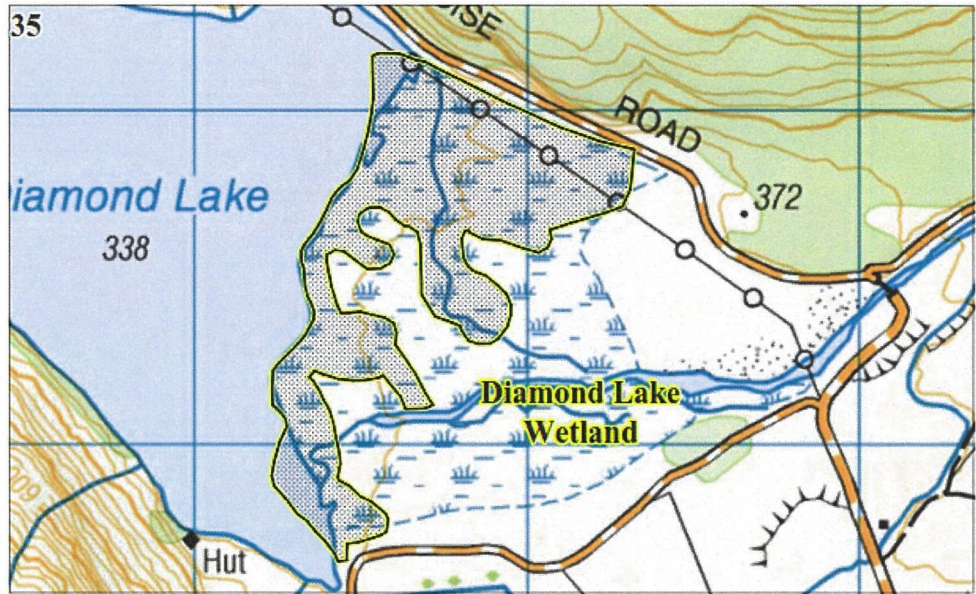
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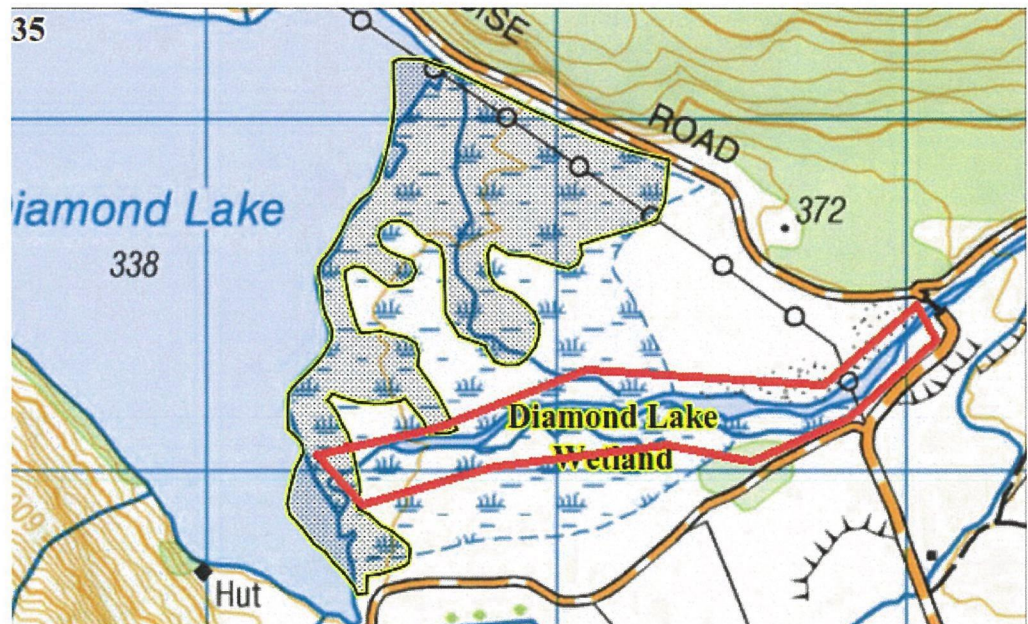
Wetland Boundary Maps for Replacement of Existing Maps in Schedule 9

Map F3 – Diamond Lake Wetland

Current Regionally Significant boundary, with Earnslaw Burn margins excluded



Requested change, with Earnslaw Burn margins included.



Former Schedule 9 boundaries.



Map F3 – Lake Reid Wetland

Current Regionally Significant boundary

