

## APPENDIX G – SIGNIFICANT NATURAL AREAS AND FEATURES

The following sites of known natural significance have been currently identified within Waimate District. They represent plant and animal communities and habitats which are representative, rare or unique within the District, or otherwise considered to be significant in terms of section 6(c) of the Resource Management Act. A range of geological and geomorphological sites have also been identified which are considered to be outstanding natural features in terms of section 6(b) of the Act. Those habitats, communities and natural features which adjoin or encompass lakes, streams, rivers and wetlands also contribute to the natural character of these water bodies in terms of section 6(a).

Significant sites of indigenous vegetation and fauna habitat have principally been identified from the following information sources:

- 1) Recommended Areas for Protection (RAP) identified in the Mackenzie Ecological Region Protected Natural Area (PNAP) Survey Report, 1984. Some of the RAPs identified within the Mackenzie Ecological Region have been enlarged on the basis of recommendations from the Protected Areas Scientific Review Committee (PASAC). A small number of these areas were also extended in consultation with the Forest Research Institute (FRI) (now Landcare NZ Ltd), or as a result of invertebrate surveys in the area. They reflect better representation of communities and improved management boundaries.
- 2) Special Sites of Wildlife Interest (SSWI) identified in *Wildlife and Sites of Special Wildlife Interest in the Upper Waitaki and Adjacent Areas* by Liz Jarman (1987), and O'Donnell, C.F.J. and Moore, S.M. 1993. *The Wildlife and Conservation of Braided River Systems in Canterbury*, NZ Wildlife Service, Wellington.
- 3) Wetlands of ecological and representative importance (WERI). The WERI database is an inventory of all types of wetlands in New Zealand. It focuses on those wetlands which are ecologically important or significant and which are representative of the natural diversity of the country. The database is administered by the Department of Conservation.
- 4) Given, D.R. (1981) *Rare and Endangered Plants of New Zealand*, Reed, Wellington.
- 5) Goodson, P.N., Holgate, G.L. and Ward-Smith, R.A. (1984) *Crown Land Management Plan for the Kirkliston Range Management Area*. Department of Lands and Survey, Christchurch.
- 6) Johnson, P. (unpub) *Stony Stream - Deep Stream Botanical Report 340*. Unpublished Report. Botany Division, DSIR.
- 7) Kelly, G.C. (1972) *(Scenic Reserves of Canterbury)*, Botany Division, DSIR

Geopreservation sites, referred to as Significant Natural Features in the Plan, are those identified in the Geopreservation Inventory held by the Science and Research Division of the Department of Conservation, and published in Kenny, J.A., and Hayward, B.W., 1993 Inventory of Important Geological Sites and Landforms in the Canterbury Region..., Geological Society of New Zealand Miscellaneous Publication.

The schedule is cross-referenced by the site numbers to the Maps. Where the site includes RAP(s), SSWI, or a WERI the reference names for these is given. RAP's are identified by Ecological District as follows: B = Benmore, G = Grampians. References to "district" are to the Ecological District, and "region" are to the ecological region.

## SIGNIFICANT NATURAL AREAS AND FEATURES

	Name	Map Reference	Data Source Description
1	Grampian Range 1a RAPG-6 1b RAPG-7 1c RAPG-8	I39 23122 56472 Maps 3	RAPs G-6 (Black Rocks - Grampian Range); G-7 (South Grampians); G-8 (South Grampians above Stony River): Combined area provides best example of alpine fellfield. Good example of transition from snow tussock to fellfield, and a <i>Festuca matthewsii</i> community. Black Rocks has only known occurrence of <i>Celmisia rumulosa</i> in the district, and largest population of <i>Aciphylla dobsonii</i> .
2	Big Range	I39 23028 56383 Map 4	RAP G-9: Subalpine/montane slim/snow tussock. The only red tussock community in the District and only example of high altitude <i>C. rubra</i> association in Region. Matagouri/Oleria communities occupy the valley bottom.
3	Lake Benmore	H39 22879 56275 Maps 1 and 2	SSWI; WERI: Largest artificial lake in New Zealand. Associated rush and sedge swamp. Popular waterfowl habitat, feeding area for black stilt, little shag, white heron, grey duck, grey teal and pukeko present. Southern crested grebe reported. Native bullies and galaxids in lake.
4	Whalans Stream	I39 22911 56248 Map 2	RAP B-8 (Whalans Stream): This merges into <i>Coprosma/Olearia</i> scrub in a large fescue tussock community and finally into an open <i>Chionchloa rigida</i> stand. Whalans Stream contains one of the thickest examples of <i>Olearia odorata</i> in the district. RAPS extended to follow catchment boundaries and include altitudinal sequences to subalpine level.
5	Lake Aviemore	I40 22960 56176 Maps 2, 5 and 6	SSWI; WERI: Large artificial lowland lake. 95% open water with generally steep shoreline and surrounding tussock grassland.
6	Deep Stream	I40 23005 56152 Map 6	6: Dryland scrub communities. Deep stream gorge contains many scrub species including the very rare <i>Coprosma kirkii</i> . Bracken fernland dominates talus slopes at base of shady hillsides. Silver and hard tussock grassland is predominant on shady gorge faces, with <i>Bromus diandrus</i> common on sunnier grassed faces. Lake shore vegetation includes niggerheads and raupo. Rock outcrops support plants typical of crevices and ledges, including whipcord daisy and dryland ferns.
7	Lake Waitaki	I40 23032 56118 Maps 6 and 7	SSWI; WERI: Lowland artificial lake, with associated rush and sedge swamp. Steep shoreline with wetland areas on some margins. Excellent waterfowl habitat especially for feeding and loafing. White faced heron and grey warbler breeding. Other birds present include bellbird, banded dotterel, grey duck and black shag.
8	Aviemore Ponds	I40 23041 56129 Map 6	SSWI; WERI: Lowland lake providing waterfowl habitat. Breeding area for grey duck.

	Name	Map Reference	Data Source Description
9	Kirkliston Range	I40 23085 56196 Maps 4, 5, 6 and 9	5: Area of high natural value. Vegetation includes of summit vegetation of scree and cushion plants, with snow tussock on higher, sunnier faces. Slim snow tussock, blue tussock and associated herb species dominate shady moist slopes, this association replaced by narrow leaved snow-tussock below 1400m. Hard and silver tussock common at lower altitudes, but displaced by scrub covered gullies further down. Remnant Halls totara and isolated kowhai are present. Ground beetles of Megadromus sp are reported to be confined to the Kirkliston and Grampian ranges.
10	Hakataramea River	I40 23215 56162 Maps 6, 7, 8, 9, 10 and 11	SSWI; WERI: Shallow braided river with mid channel islands and large open cobble and shingle areas. Black fronted tern and banded dotterel breeding area. Headwaters have potential to support native species such as banded kokopu, koaro, bullies and eels. Important trout and salmon fishery.
12	Waitaki River	J40 23366 55900 Maps 7, 12, 13, 19 and 24	SSWI: Wide braided river channels free of permanent vegetation. Willow-dominated berms with tributary streams and swampland offer sheltered habitat for swamp birds. Forty-eight wetland bird species recorded in lower Waitaki River catchment, 23-24 of these breeding. Lagoon is an inanga spawning area. Important trout and salmon fishery..
13	Waihuna Stream	J40 23405 55925 Map 19	Slow flowing stream containing a known population of Canterbury mudfish.
16	Waikakahi Stream	J40 23515 55904 Map 19	Slow flowing stream that may provide habitat for Canterbury mudfish.
17	Whitney's Creek	J40 23560 55901 Map 24	WERI: Rush and sedge swamp, slow single channel river. Very promising habitat for Canterbury mudfish.
18	Dog Kennel Stream	J40 23543 55929 Map 19	WERI: Coastal stream. Nationally significant habitat for large Canterbury mudfish population
20	Waihao River and Margins	J40 23483 55995 Map 18	SSWI; WERI: Fast, single channel river. The northern riparian land contains both native and exotic mixed age regenerating bush, forest and scrubland. An inanga spawning area and trout and salmon fishery.
21	Fletchers Oxbow/Cruicks hank's Reserve	J40 23631 56009 Map 23	SSWI; WERI: Lowland lake and flax swamp. Wildlife management reserve, important part of Waihao River system. Significant waterfowl habitat for New Zealand shoveler. Other bird species present include Australian brown bittern and marsh crake. Canterbury mudfish may be present. Vegetation consists mainly of a dense willow canopy, Carex spp, flax, rushes, emergent and non-emergent aquatic plants.
22	Waihao Box	J40 23652 56028 Map 23	SSWI; WERI: Wildlife management reserve consisting of a sand/shingle beach ridge on impounded brackish stream wetland. Ridge sparsely vegetated, wetland margins contain rush and sedge swamp. Provides a roosting place for seabirds and waterfowl, including white heron, bittern and banded dotterel. Lagoon is an inanga spawning habitat.

	Name	Map Reference	Data Source Description
26	Wainono Lagoon	J40 23638 56100 Map 22, 23	SSWI; WERI: The only substantial coastal lake and mudflat between Lake Ellesmere and the Tairi Valley, a wetland of international importance under the RAMSAR wetland convention. Area consists of flax swamp, rush and sedge swamp, succulent herb swamp and mudflat. Important for a number bird species, including white heron, royal spoonbill, wrybill, grey teal and pied stilt. Habitat for a range of native fish species, an inanga spawning ground and Maori eel fishing area.
27	Waituna Stream	J40 23594 56084 Map 22	Slow flowing creek containing a population of Canterbury mudfish.
30	Uretane Bush	J40 23542 56014 Map 18, 23	SSWI: Forest habitat. Lowland mixed broadleaved forest with bush birds present including tomtit and rifleman.
31	Waimate Gorge Bush	J40 23523 56027 Map 18	SSWI: Forest habitat. Lowland mixed broadleaved forest with basic bush birds present
32	Waihao Gorge Bush	J40 23434 56079 Maps 17 and 18	SSWI: Forest habitat. Lowland broadleaved forest connected by shrubland along Waiho River. Riparian lands contain exotic and native species in transition from past disturbances. Some steep gorges already fairly densely covered with natives. Forest birds present, with high numbers of bellbirds. Some wetland birds also present including a reported black shag colony, grey duck and paradise shelduck.
33	Mill Road Bush	J40 23491 56071 Maps 17 and 18	SSWI: Forest habitat. Several patches of lowland mixed hardwood forest connected by scattered shrubland and trees. Good canopy with frequent big trees, including totara,. Good bird numbers and diversity.
34	Kelceys Bush	J40 23481 56107 Map 17	SSWI: Forest habitat. Large mixed broadleaved lowland forest remnant. Good canopy with some excellent large matai trees, and remnant totara. Regionally common birds present, also sightings of kingfisher, shining cuckoo, and morepork. Large part of bush already reserved as town water area.
35	Meyers Road Bush	J40 23490 56126 Map 17	SSWI: Forest habitat. High quality lowland mixed broadleaved forest. Good floor cover and high bird numbers. Bush flanked by pasture and modified tussock grassland.
36	Gunn's Bush	J40 23480 56137 Map 17	SSWI: Forest Habitat. Area of lowland mixed boradleaf forest. Low canopy with a few kahikatea, but little understorey. Bush bireds present, include rifleman and South Island tomtit.
37	Hook Bush	J40 23480 56162 Map 17	SSWI: Forest habitat. Large lowland broadleaved hardwood forest with remnant podocarps. Mature podocarp hardwood forest in lower reaches merging with mixed tussock, scrub, herbfields above a fire-induced bushline. High bird numbers and diversity, including New Zealand pigeon.
38	Jackson Bush	J40 23484 56185 Maps 16 and 17	SSWI: Forest habitat. Lowland podocarp/hardwood forest and scrub. Good quality habitat with good range of vegetation. Bush birds present include New Zealand pigeon, South Island tit and morepork.
39	Milne's Road Bush	J39 23474 56205 Map 16	SSWI: Forest habitat. Mixed broadleaved hardwood forest. Birds present include New Zealand pigeon, bellbird, rifleman, South Island tit and grey duck.

	Name	Map Reference	Data Source Description
40	Stanley's Road Bush	J39 23486 56220 Map 16	SSWI: Forest habitat. Mixed broadleaved hardwood forest on lowland hill slopes. Good quality vegetation. Bush birds present including South Island tit, rifleman and reported sightings of New Zealand pigeon.
41	Mount Cecil Bush	J39 23475 56226 Map 16	SSWI: Forest habitat. Podocarp/mixed hardwood forest on lowland hill slopes. Good regeneration. Birds present include South Island tit, brown creeper, rifleman and New Zealand Pigeon (reported.)
42	Teshemakers Bush	J39 23478 56238 Map 16	SSWI: Forest habitat. Lowland podocarp/mixed broadleaved forest. Unusual for large numbers of matai and kahikatea on lower slopes. Bush birds present including rifleman and South Island tit.
43	Robbs Road Bush	J39 23474 56254 Map 16	SSWI: Forest habitat. Lowland mixed broadleaved forest and scrub. Bush birds present, including South Island tit.
44	Horseshoe Bend Stream	J39 23601 56224 Map 21	WERI: Coastal stream containing known population of Canterbury mudfish.
45	Kohika Lagoon	J39 23642 56217 Map 21	WERI: Wetland. Succulent herb swamp, salt rush and reed swamp.
46	Otaio Flats	J39 23646 56239 Map 21	WERI: Wetland. Salt rush and reed swamp. Water fowl waders present.
47	Otaio River Bush	J39 23432 56256 Map 16	SSWI: Forest habitat. Lowland podocarp/mixed broadleaved forest and scrub effectively joining scenic reserve. Few large trees but close canopy. Good bird diversity and numbers. Black shag colony reported.
48	Otaio Gorge Scenic Reserve	J39 23441 56285 Map 16	SSWI: Forest habitat. Lowland broadleaved forest remnant and montane podocarp/mixed broadleaved forest. Fairly good stand composed of species common in this area. Bush birds present, including New Zealand pigeon and South Island tit also grey duck and blue duck on Otaio River
49	Silverstream Bush	J39 23423 56294 Map 16	SSWI: Forest habitat. Large area of lowland mixed broadleaved forest and scrub with some totara. Good structure and composition. Bush birds present including New Zealand pigeon and reported sightings of kingfisher.
50	Mt Airini Bush	J39 23410 56326 Map 15	SSWI: Forest habitat. Lowland mixed broadleaved forest on steep, mainly south facing slopes. Small area with broken canopy. Bush birds present.
51	Grange Hill Bush	J39 23398 56343 Map 15	SSWI: Forest habitat. Lowland mixed broadleaved forest. Bush birds present include rifleman, brown creeper and South Island tit.
52	Motukaika Bush	J39 23398 56361 Map 15	SSWI: Forest habitat. Hardwood forest and shrubland on steep slopes. Forest structure has many gaps. Low to moderate numbers of most bush birds in the district and New Zealand pigeon.

	Name	Map Reference	Data Source Description
53	Hunters Hills Conservation Land	J39 23330 56356 Maps 9 and 15	4: Large remote area of dissected montane ridges and basins. Scattered montane shrublands and snow tussock merging with tussock grasslands at lower altitudes. Includes a good variety of aspect and altitude, plus large tracts of several upper catchments.
54	Mt Nimrod Scenic Reserve	J39 23403 56385 Map 15	7: SSWI: Contains altitudinal sequence of plant communities. Mixed broadleaved forest running to tussock hill pasture; mahoe/broadleaved mixed broadleaved forest; ribbonwood/mahoe mixed broadleaved forest; mixed shrublands; native tussock and pasture grassland. Excellent example of mixed broadleaved lowland forest. Fairly high numbers of bush birds present including New Zealand pigeon, South Island tit and rifleman.
55	Matata Scenic Reserve	J39 23397 56410 Map 15	7: SSWI: Forest habitat. Mahoe and mixed broadleaved dominated lowland forest remnant with scattered podocarps, Coprosma shrublands and mixed tussock grassland. New Zealand pigeon and New Zealand falcon present in addition to bush birds.
56	White Rock Bush	J39 23396 56440 Maps 14 and 15	SSWI: Forest habitat. Lowland mixed broadleaved forest, mainly on steep gully slopes. Bush birds present.
57	Mahoe Farm Bush	J39 23396 56454 Map 14	SSWI: Forest habitat. Lowland mixed broadleaved forest, mainly on steep gully slopes. Bush birds present include New Zealand pigeon, brown creeper, and South Island tit.
58	Pareora Scenic Reserve	J39 23372 56482 Map 14	7; SSWI: Small area of lowland regenerating mixed broadleaved forest, with small-leaved shrubland. Botanically interesting low rainfall limestone vegetation present. Bush birds present include South Island tit and brown creeper.
59	Pareora River	J39 23581 56404 Maps 14 and 20	SSWI; WERI: Small braided river and coastal stream. Marsh crake present in berm areas, otherwise low numbers only of common riverbed bird species. Inanga spawning area.
60	Pareora Rivermouth and Lagoon	J39 23678 56323 Map 20	SSWI; WERI: Wetland. Reed swamp, rush and sedge swamp, mudflat, shingle rivermouth, and two small coastal lagoons. Low bird numbers, but bittern crake, and grey teal present.
61	Un-named Stream, St Andrews	J39 23671 56311 Map 21	WERI: Coastal stream containing reasonably large Canterbury mudfish population.

#### Note

Sites of Natural Significance 11, 14, 15, 19, 23, 25, 28, and 29 have been deleted from this list.



**SIGNIFICANT NATURAL FEATURES – (GEOPRESERVATION SITES)**

Site	Name	Map Reference	Description
<b>G1</b>	Black Jacks Triassic Macroflora, Benmore Dam	H39 22883 56232 Map 2	Nationally important site containing Lower Mesozoic plant fossils and middle Triassic estuarine deposits.
<b>G2</b>	Benmore Dam Faulted Greywacke	H39 22875 56226 Map 2	Faulted and subvertical sandstones and argillites providing a good example of structure within the Torlesse terrain of late Mesozoic, Tertiary age.
<b>G3</b>	Benmore Permian Fusulinids	I39 22910 56205 Map 2	One of only three fusulinid foraminifera localities in New Zealand. A site of international importance.
<b>G4</b>	Kirkliston Fault	I39 23164 56203 Map 10	Zone of late Tertiary to late Quaternary deformation of up to 3 km in width, associated with range front reverse faulting, gently backtilted and offset fan surfaces and deformed Tertiary and Quaternary sediments.
<b>G6</b>	Dryburgh Fault	I40 23158 56006 Map 12	Major reverse fault system in the Waitaki Basin with obvious topographic expression and Quaternary offset. System of splay faults form a zone approximately 500m wide where Tertiary sediments overthrust Quaternary gravels and greywacke overthrusts Tertiary along moderately steep angle contacts.
<b>G7</b>	Foveran Sarsen Stones	I40 23210 56100 Map 11	Remnant Sarsen stones after stripping off of Tertiary cover. Particularly good example of an extensive group of Sarsen stones.
<b>G8</b>	Brothers Stream Oligocene Fauna	I40 23203 56131 Map 11	Site containing diverse Waitakian molluscan fauna, deemed to be of national importance.
<b>G9</b>	Sisters Creek Oligocene Fauna	I40 23231 56159 Map 11	Site of diverse Waitakian macrofauna including whales, brachiopods and corals. Nationally important site
<b>G10</b>	Waihao River (South Branch) Eocene Molluscan Fauna	J40 23355 56109 Map 17	Site of national importance displaying diverse molluscan fauna
<b>G11</b>	Waiho Downs Eocene Molluscan Fauna	J40 23447 56000 Map 18	Nationally important site containing diverse Bortonian molluscan fauna.
<b>G12</b>	Waihao Forks Miocene Sandstones	J40 23465 55998 Map 18	Cross-bedded and channelled glauconitic calcarenites with some very good trace fossils. The maximum marine transgression in the region is shown and the site, deemed to be of international importance, also contains informative and interesting sedimentary structures.
<b>G13</b>	Waiho River Eocene Deepwater Fauna	J40 23489 55989 Map 18	Nationally important site containing diverse Kaiatan deepwater molluscan fauna.

Site	Name	Map Reference	Description
<b>G14</b>	McCulloch's Bridge Eocene Fauna and Unconformity	J40 23500 55989 Map 18	Unconformity marked by partly cemented and phosphatised bed. A site of national importance containing exceptionally diverse Bartonian and Kaiatan molluscan faunas. Also a boundary stratotype for these two stages and stratotype of disused Tahuian Stage. A possible correlation exists between the unconformity and a drop in sea level at 39.5 Ma.
<b>G15</b>	Otaio River Paleogene Fossiliferous Sediments	J39 23455 56301 Map 16	Paralic coal measures, shelfal sandstone, liminitic greensand, micritic limestone, greystone. Nationally important site providing good exposure of Eocene, Oligocene, and Miocene, including unconformities. Best documented upper Dannevirke molluscan fauna in New Zealand
<b>G16</b>	Squires Farm Oligocene Marshall Paraconformity	J39 23448 56309 Map 16	Well exposed burrowed contact between Squires Greensand and Home Station Limestone. Type section of the nationally important Oligocene Marshall paraconformity. rich unusual brachiopod fauna.
<b>G17</b>	Blue Cliffs Miocene Macrofauna	J39 23516 56336 Map 15	Diverse macrofauna and holostratotype of Otaian stage. A nationally important site.
<b>G19</b>	White Rock River Miocene Molluscan fauna	J39 23435 56466 Map 14	Nationally important site containing diverse Altonian molluscan fauna.
<b>G22</b>	Dolines (Pt Lot2 DP 9641)	J39 23492 56395 Map 15	A field of dolines formed in Tertiary limestone.

#### Note

Geopreservation Site G18 Pareora has been deleted from this list.