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Table 1: DOC database background information.

Information source	Data collection method	Date of data collection	Reliability
DOC Index database: Sites of special wildlife interest (SSWIs)	Field survey	1977-1985	Polygons with no attributes, wetlands difficult to identify. Care needed as boundaries inaccurate.
DOC Index database: Wetlands of ecological and representative importance (WERIs)	Compilation based on previous fieldwork	1982-1987, partially updated to 1989	Polygons with no attributes. Care needed as boundaries inaccurate (though generally more accurate than SSWIs).
DOC sites of natural significance (SONS).	Field survey and compilation	1993 onwards	Sites questioned by farmers were visited (unless values certain) and other sites also verified. Very useful and typically reliable.
Plains PNAP reconnaissance survey (Steven & Meurk 1994)	Aerial photograph interpretation and field survey.	1992-1993	Much of survey undertaken from roadsides though some detailed work included. GIS data, stored with Landcare Research, both very useful and reliable.
New Zealand Landcover database, version 2 (2004)	Aerial photograph interpretation	2004	Wide-scale vegetation analysis of whole country. Data is often inaccurate for mapping at small scales, but gives a good overview of ecosystems across districts and regions.
LENZ Database	Land Environments for NZ derived from climatic and geological factors	2003	Shows the changes in biological drivers across the landscape. Data is often inaccurate at the local scale, but district and region wide comparisons are valid.

Table 2: Principle wetland information sources.

Information source	Data collection method	Date of data collection	Reliability
DOC Index database: Sites of special wildlife interest (SSWIs)	Field survey	1977-1985	Polygons with no attributes, wetlands difficult to identify. Care needed as boundaries inaccurate.
DOC Index database: Wetlands of ecological and representative importance (WERIs)	Compilation based on previous fieldwork	1982-1987, partially updated to 1989	Polygons with no attributes. Care needed as boundaries inaccurate (though generally more accurate than SSWIs).
NZ wetland inventory (Cromarty & Scott 1996)	Compilation	1996?	Diversity of information sources used. Variable reliability and not fully comprehensive.
DOC sites of natural significance (SONS).	Field survey and compilation	1993 onwards	Sites questioned by farmers were visited (unless values certain) and other sites also verified. Very useful and typically reliable.
Natural areas of Christchurch report (Meurk et al. 1993)	Compilation aerial photograph interpretation and field survey.	1993	GIS layer held by Christchurch City Council more useful than report, data reliable.
Plains PNAP reconnaissance survey (Steven & Meurk 1994)	Aerial photograph interpretation and field survey.	1992-1993	Much of survey undertaken from roadsides though some detailed work included. GIS data, stored with Landcare Research, both very useful and reliable.

Note: Only sources relevant to the CPW are included. Refer to Davis (1999) for further details regarding these information sources.

Table 3: Approximate percentage cover of different vegetation types within Whitecliffs, High Plains, Low Plains and Ellesmere Ecological Districts. Data from the Landcover Database 2004.

ED	Pasture, shelterbelts, urban and open areas	Indigenous forest	Secondary indigenous	Wetlands (saline and freshwater)	Plantation forest
Whitecliffs	81.8	4.3	3.2	<0.1	10.7
High Plains	96.2	0.1	0.1	<0.1	3.6
Low Plains	96.2	<0.1	0.1	0.2	3.5
Ellesmere	23.5	<0.1	1.1	75.3	0.1

Table 4: Major LENZ Level IV Environments in the CPW area

Level IV code	General description	Threat and protection classification
E3.2b	Comprises low elevation, undulating foothills with imperfectly drained soils of moderate fertility in Mid- and Southern Canterbury. Climate is warm, with moderate solar radiation, high vapour pressure deficits and low annual water deficits.	Acutely threatened, critically underprotected.
N1.1a	Comprises flat plains with well drained soils of high fertility in Canterbury. Climate is mild, with high solar radiation, high vapour pressure deficits and moderate annual water deficits.	Acutely threatened, critically underprotected.
N1.2b	Comprises very gently undulating plains with fine-textured soils of imperfect drainage with high fertility on the Canterbury Plains. Climate is mild, with high solar radiation, high vapour pressure deficits and low annual water deficits.	Acutely threatened, critically underprotected.
N1.2c	Comprises very gently undulating plains with fine-textured soils of imperfect drainage with high fertility on the Canterbury Plains. Climate is mild, with high solar radiation, high vapour pressure deficits and high annual water deficits.	Acutely threatened, critically underprotected.
N2.1a	Comprises flat plains with well drained soils of high fertility north of Timaru to Christchurch. Climate is mild, with moderate solar radiation, high vapour pressure deficits and high annual water deficits.	Acutely threatened, critically underprotected.
N2.1b	Comprises flat plains with fine textured soils of moderate fertility north of Timaru to Christchurch. Climate is mild, with moderate solar radiation, warm winter temperatures, high vapour pressure deficits and high annual water deficits.	Acutely threatened, critically underprotected.
J2.1b	Comprises flat flood plains with recent, well-drained soils of high fertility in Marlborough and around Christchurch. Climate is mild, with high solar radiation, high vapour pressure deficits and high annual water deficits.	Acutely threatened, >20% protected.
J2.2b	Comprises very gently undulating flood plains with recent, well-drained soils of high fertility in inland mid-Canterbury. Climate is warm, with high solar radiation, high vapour pressure deficits and moderate annual water deficits.	Acutely threatened, critically underprotected.

Table 5: DOC listed areas of natural significance in the Central Plains area.

Site name	Area (ha)	NATSIG ID Code	Easting	Northing
"Westwood" Terrace Wetland	6	0	2435759	5756663
Avon River (lower)	5	485	2486800	5744500
Bankside Kanuka	19	684	2441860	5719689
Bankside Scientific Reserve	3	690	2442282	5719366
Bankside Scientific Reserve	6	691	2443385	5719118
Bankside Scientific Reserve	11	697	2443882	5718560
Bankside Scientific Reserve	7	715	2443782	5717345
Brooklands Lagoon	192	0	2486200	5755100
Coes Ford Flaxland	3	0	2462798	5722988
Coopers Lagoon	70	0	2454152	5704597
Coutts Island Wetland	2	458	2479934	5753015
Estuary of the Heathcote and Avon Rivers	1,000	488	2487957	5740483
Glasseys Road Tussock	0	0	2438893	5719363
Haldon Pastures Streams	62	0	2430991	5736768
Harts Creek Sedgeland	1	0	2455085	5711087
Headworks Road Kanuka	2	0	2436804	5717558
Horseshoe Lake	6	481	2483700	5745700
Hudson Road Matagouri	0	0	2471119	5722103
Irwell River Flax Threads	3	0	2455464	5722337
Kaitorete dunes	1,426	823	2474000	5707800
Keens Road Wetland	13	0	2427109	5763922
Leyden Swamp	5	0	2410504	5741153
Lower Rakaia River	16,507	493	2425000	5722000
Lower Waimakariri River	7,920	356	2439400	5754000
Milltown Road Ti	2	0	2451694	5708017
Old West Coast Road Drylands	0	0	2462588	5745103
Otukaikino Creek	13	453	2480800	5753300
Rakaia gorge	366	471	2401500	5742500
Rakaia Island	136	769	2439800	5711200
Rakaia River Shrubland	79	497	2406634	5739861
Rakaia River Terrace Shrublands	13	494	2405100	5741000
Rakaia Terrace Dry Shrublands	2	509	2409037	5738678
Rakaia Terrace Dry Shrublands	6	511	2409169	5738301
Rakaia Terrace Dry Shrublands	2	512	2409386	5738424
Rakaia Terrace Dry Shrublands	11	514	2409579	5737350
Rakaia Terrace Dry Shrublands	19	515	2409584	5737292
Rakaia Terrace Dry Shrublands	4	519	2412082	5737075
Rakaia Terrace Dry Shrublands	5	524	2411554	5736491
Riccarton (Deans) Bush	4	492	2477000	5742000
Riverbank Flax Swamp	7	505	2401700	5739900
Rockford Road Terraces of Waimakariri River	6	369	2428400	5764400
Rubicons Road	74	0	2425037	5766648
Rutherfords Bush	13	353	2425094	5767700
Selwyn Road Native Broom	28	683	2438053	5719761
Te Waihora	22,427	664	2466000	5714000

Site name	Area (ha)	NATSIG ID Code	Easting	Northing
Upper Irwell River flaxland	2	0	2446115	5728100
Waimak Gorge Bridge Dry Shrubland	3	0	2432949	5760230
Waimak Gorge Bridge/Nth bank	2	397	2433015	5760577
Waimakariri Gorge	1,156	247	2424694	5780046
Waimakariri Groynes	13	465	2478200	5750700
Waimakariri Kowhai Reserve	1	0	2456104	5748619
Waimakariri North Bank Drylands	71	449	2442000	5753600
West Melton Rifle Range Drylands	29	0	2458523	5747464
Western Kaitorete Barrier	85	843	2463100	5706800
Wilsons Swamp	24	459	2481100	5752800
Yarrs Lagoon	57	625	2466200	5724700

Note: Information adapted from DOC Sites of Natural Significance database, 2005.

Table 6: Threatened plants within the CPW area.

Species	Common name	Threat status
<i>Anogramma leptophylla</i>	Jersey fern	Gradual decline
<i>Austrofestuca littoralis</i>	hinarepe	Gradual decline
<i>Carmichaelia kirkii</i>	scrambling broom,	Nationally endangered
<i>Carmichaelia appressa</i>	Kaitorete prostrate broom	Range restricted
<i>Chenopodium pusillum</i>	clammy goosefoot	Data deficient
<i>Chenopodium detestans</i>	fish-guts plant	Data deficient
<i>Coprosma pedicellata</i>		Gradual decline
<i>Craspedia 'Kaitorete'</i>		Nationally critical
<i>Crassula multicaulis</i>		Sparse
<i>Eleocharis neozelandica</i>	spike sedge	Gradual decline
<i>Gratiola nana</i>		Gradual decline
<i>Isolepis basilaris</i>		Serious decline
<i>Juncus holoschoenus</i> var. <i>holoschoenus</i>		Nationally endangered
<i>Leptinella nana</i>	pygmy button daisy	Nationally endangered
<i>Luzula celata</i>	wood rush	Serious decline
<i>Mazus novaezeelandiae</i> subsp. <i>impolitus</i>	dwarf false musk,	Serious decline
<i>Melicytus flexuosus</i>		Gradual decline
<i>Muehlenbeckia ephedroides</i>		Sparse
<i>Muehlenbeckia astonii</i>	shrubby tororaro	Nationally vulnerable
<i>Myosurus minimus</i> subsp. <i>novae-zelandiae</i>	New Zealand mousetail	Nationally endangered
<i>Urtica linearifolia</i>	swamp nettle	Gradual decline

Note: Threat status after Hitchmough et al. (2007).
Data source, Head & Buunk (2005); DOC Threatened Species database (2005).

Table 7: Plant species present in the CPW area.

Species	Common names	Threat status / significance	WV	LE	WRR	ISA	LWB	WC
<i>Acer pseudoplatanus</i> *	sycamore		✓					
<i>Achillea millefolium</i> *	yarrow		✓					
<i>Agrostis capillaris</i> *	browntop		✓					
<i>Azolla filiculoides</i>	retoreto, Pacific azolla					✓		✓
<i>Baumea rubiginosa</i>							✓	
<i>Bellis perennis</i> *	daisy		✓					
<i>Betula pendula</i> *	silver birch		✓					
<i>Blechnum minus</i>	swamp kiokio					✓	✓	✓
<i>Blechnum novae-zelandiae</i>	kiokio				✓			
<i>Bolboschoenus caldwellii</i>	wiwi	Culturally important		✓				
<i>Brassica rapa</i> *	wild turnip						✓	
<i>Buddleja davidi</i> *	buddleia		✓					
<i>Cardamine hirsuta</i> *	hairy bittercress		✓					
<i>Carex coriacea</i>	toetoe/ ruatahi	Culturally important		✓				
<i>Carex flagellifera</i>	mania	Taonga species (NTCSA)		✓			✓	
<i>Carex flaviformis</i>							✓	
<i>Carex geminata</i>	rautahi		✓					
<i>Carex maorica</i>						✓	✓	✓
<i>Carex secta</i>	pukio	Culturally important	✓	✓	✓	✓	✓	✓
<i>Carex sinclairii</i>							✓	
<i>Carex virgata</i>	swamp sedge		✓		✓	✓	✓	✓
<i>Carmichaelia appressa</i>	maukoro	Culturally important		✓				
<i>Cirsium vulgare</i> *	Scotch thistle		✓					
<i>Coprosma foetidissima</i>	karamu	Taonga species (NTCSA)		✓				
<i>Coprosma lucida</i>	karamu	Taonga species (NTCSA)		✓				

Species	Common names	Threat status / significance	WV	LE	WRR	ISA	LWB	WC
<i>Coprosma pedicellata</i>		Gradual decline			✓			
<i>Coprosma propinqua</i>	mingimingi				✓			
<i>Coprosma robusta</i>	karamu	Taonga species (NTCSA)	✓	✓				
<i>Cordyline australis</i>	cabbage tree, ti kouka	Taonga species (NTCSA)	✓	✓	✓	✓	✓	✓
<i>Corokia cotoneaster</i>	korokio, wire-netting bush				✓			
<i>Cortaderia richardii</i>	toetoe	Taonga species (NTCSA)	✓	✓			✓	
<i>Cortaderia species*</i>	pampas		✓					
<i>Corybas species</i>	spider orchid						✓	
<i>Craspedia lanata</i>	grey woollyhead				✓			
<i>Cupressus macrocarpa*</i>	macrocarpa		✓					
<i>Cynosurus cristatus*</i>	crested dogstail		✓					
<i>Cyperus ustulatus</i>	toetoe	Rare in Canterbury		✓			✓	
<i>Cytisus scoparius*</i>	broom		✓		✓	✓	✓	
<i>Dacrycarpus dacrydioides</i>	kahikatea						✓	
<i>Dactylus glomerata*</i>	cocksfoot		✓					
<i>Desmoschoenus spiralis</i>	pingao	Taonga species (NTCSA)		✓				
<i>Discaria toumatou</i>	matagouri, wild Irishman				✓			
<i>Dodonaea viscosa</i>	akeake	At its distribution limit		✓				
<i>Drosera binata</i>	wahu			✓				
<i>Drosera species</i>	sundew, wahu						✓	
<i>Echium vulgare*</i>	viper's bugloss				✓			
<i>Elaeocarpus dentatus</i>	hinau						✓	
<i>Elaeocarpus hookerianus</i>	pokaka						✓	
<i>Epilobium microphyllum</i>	willowherb				✓			
<i>Epilobium rostratum</i>	willowherb				✓			
<i>Eschscholzia californica*</i>	California poppy				✓		✓	
<i>Eucalyptus species*</i>	eucalyptus		✓			✓	✓	

Species	Common names	Threat status / significance	WV	LE	WRR	ISA	LWB	WC
<i>Fatsia japonica</i> *	fatsia		✓					
<i>Galium aparine</i> *	cleavers		✓					
<i>Glyceria fluitans</i> *	floating sweetgrass					✓		✓
<i>Griselinia littoralis</i>	broadleaf				✓			
<i>Hebe salicifolia</i>	koromiko		✓					
<i>Hedera helix</i> *	ivy		✓				✓	
<i>Helichrysum depressum</i>					✓			
<i>Helichrysum dimorphum</i>	Climbing everlasting daisy	Nationally endangered			✓			
<i>Hieracium praealtum</i> *	king devil hawkweed				✓			
<i>Hoheria populnea</i>	lacebark		✓					
<i>Holcus lanatus</i> *	Yorkshire fog		✓			✓		✓
<i>Hydrocotyle heteromeria</i>	waxweed		✓					
<i>Hydrocotyle moschata</i>			✓					
<i>Hypericum japonicum</i>	swamp hypericum		✓					
<i>Isolepis nodosa</i>	wiwi	Culturally important		✓				
<i>Juncus articulatus</i> *	jointed rush		✓			✓		✓
<i>Juncus australis</i>			✓		✓	✓	✓	
<i>Juncus effusus</i> *	soft rush		✓			✓	✓	
<i>Juncus gregiflorus</i>		Taonga species (NTCSA)	✓	✓	✓	✓	✓	✓
<i>Juncus holoschoenus</i> var. <i>holoschoenus</i>		Nationally endangered				✓		
<i>Juncus maritimus</i> var. <i>australiensis</i>	wiwi	Taonga species (NTCSA)		✓				
<i>Juncus planifolius</i>							✓	
<i>Juncus procerus</i> *			✓			✓	✓	
<i>Kniphofia x praecox</i> *	red hot poker		✓					
<i>Kunzea ericoides</i>	kanuka				✓			
<i>Lemna minor</i>	karearea, duckweed					✓	✓	✓
<i>Leptocarpus similis</i>	oioi	Culturally important		✓			✓	

Species	Common names	Threat status / significance	WV	LE	WRR	ISA	LWB	WC
<i>Leptospermum scoparium</i>	manuka				✓			
<i>Logfia minima*</i>	small cudweed						✓	
<i>Lupinus arboreus*</i>	yellow tree lupin				✓			
<i>Lupinus polyphyllus*</i>	Russell lupin				✓			
<i>Luzula celata</i>	Dwarf woodrush	Serious decline			✓			
<i>Melicytus alpinus</i>	porcupine shrub				✓			
<i>Melicytus flexuosus</i>		Gradual decline				✓		
<i>Mimulus guttatus*</i>	monkey musk					✓	✓	✓
<i>Mimulus repens</i>	purple mimulus	Sparse		✓				
<i>Muehlenbeckia astonii</i>	shrub pohuehue						✓	
<i>Muehlenbeckia axillaris</i>	creeping pohuehue				✓			
<i>Muehlenbeckia ephedroides</i>	Leafless pohuehue	Sparse			✓			
<i>Myoporum laetum</i>	ngaio	Taonga species (NTCSA)		✓				
<i>Myosotis sylvatica*</i>	garden forget-me-not		✓					
<i>Myosotis uniflora</i>	cushion forget-me-not				✓			
<i>Myriophyllum aquaticum*</i>	parrot's feather					✓		✓
<i>Myriophyllum propinquum</i>						✓		✓
<i>Olearia rani</i>	heketara		✓					
<i>Pentachondra pumila</i>	dwarf heath				✓			
<i>Phormium tenax</i>	flax, harakeke	Taonga species (NTCSA)	✓	✓	✓	✓	✓	✓
<i>Pimelea prostrata</i>	pinatoro, native daphne				✓			
<i>Pinus radiata*</i>	radiata pine		✓			✓	✓	
<i>Pittosporum tenuifolium</i>	kohuhu		✓					
<i>Plagianthus divaricatus</i>	saltmarsh ribbonwood			✓				
<i>Plantago lanceolatus*</i>	narrow-leaved plantain		✓					
<i>Plantago raoulii</i>	tukorehu						✓	
<i>Poa cita</i>	wi	Taonga species (NTCSA)		✓				

Species	Common names	Threat status / significance	WV	LE	WRR	ISA	LWB	WC
<i>Poa maniototo</i>					✓			
<i>Podocarpus totara</i>	totara						✓	
<i>Polystichum richardii</i>	pikopiko, black shield fern		✓			✓		
<i>Polystichum vestitum</i>	puniu, prickly shield fern		✓			✓	✓	✓
<i>Populus alba</i> *	silver poplar		✓					
<i>Populus species</i> *	poplar species		✓					
<i>Potentilla anserinoides</i>							✓	
<i>Prumnopitys taxifolia</i>	matai						✓	
<i>Prunella vulgaris</i> *	selfheal		✓					
<i>Prunus species</i> *	prunus		✓					
<i>Pseudopanax arboreus</i>	five-finger, whauwhaupuku				✓			
<i>Pseudopanax ferox</i>	Fierce lancewood	Sparse			✓			
<i>Pteridium esculentum</i>	bracken, rarauhe	Taonga species (NTCSA)	✓	✓	✓	✓		✓
<i>Quercus robur</i> *	common oak		✓					
<i>Ranunculus glabrifolius</i>							✓	
<i>Ranunculus repens</i> *	creeping buttercup		✓			✓		✓
<i>Raoulia hookeri</i>	scabweed, mat daisy				✓			
<i>Raoulia tenuicaulis</i>	tutahuna, mat daisy				✓			
<i>Rhododendron species</i> *	rhododendron, azalea, vireya		✓					
<i>Rorippa nasturtium-aquaticum</i> *	watercress					✓	✓	✓
<i>Rosa rubiginosa</i> *	sweet brier				✓			
<i>Rubus cissoides</i>	bush-lawyer, tataramoa		✓					
<i>Rubus fruticosus agg.</i> *	blackberry		✓			✓	✓	✓
<i>Rumex obtusifolius</i> *	broad-leaved dock		✓					
<i>Salix babylonica</i> *	weeping willow		✓					
<i>Salix fragilis</i> *	crack willow		✓		✓	✓	✓	
<i>Sambucus species</i> *	elder						✓	

Species	Common names	Threat status / significance	WV	LE	WRR	ISA	LWB	WC
<i>Schedonorus phoenix</i> *	tall fescue		✓					
<i>Schoenoplectus pungens</i>	three square						✓	
<i>Schoenoplectus tabernaemontani</i>	kuta	Culturally important		✓			✓	
<i>Schoenus apogon</i>							✓	
<i>Schoenus pauciflorus</i>	bog rush	Culturally important		✓		✓	✓	
<i>Scleranthus uniflorus</i>	scabweed				✓			
<i>Sedum acre</i> *	stonecrop				✓			
<i>Senecio vulgaris</i> *	groundsel		✓					
<i>Sequoia sempervirens</i> *	Californian redwood		✓					
<i>Sophora microphylla</i>	kowhai	Taonga species (NTCSA)		✓	✓		✓	
<i>Stellaria media</i> *	chickweed		✓					
<i>Taraxacum officinale</i> *	dandelion		✓					
<i>Trifolium repens</i> *	white clover		✓		✓			
<i>Typha angustifolia</i>	raupo	Taonga species (NTCSA)		✓	✓			
<i>Typha orientalis</i>	raupo						✓	
<i>Ulex europaeus</i> *	gorse		✓		✓	✓	✓	✓
<i>Urtica linearifolia</i>	swamp nettle	Gradual decline		✓			✓	
<i>Verbascum thapsus</i> *	woolly mullein		✓		✓	✓	✓	
<i>Vinca major</i> *	periwinkle						✓	
<i>Viola odorata</i> *	violet		✓					

Notes: * Indicates exotic species.

WV: Waianiwaniwa Valley

LE: Lake Ellesmere

WRR: Waimakariri and Rakaia Rivers

ISA: Irrigation Supply Area

LWB: Lowland Water Bodies

WC: Water Channels

Information adapted from Te Runanga o Ngai Tahu and the Department of Conservation (2004), NTSCA – Ngai Tahu Claims Settlement Act 1998. Threat status after Hitchmough et al. (2007).

Table 8: Vegetation types within the reservoir inundation area, Waianiwaniwa Valley.

Vegetation type	Number of areas	Total area (ha)	Vegetation cover (%)
Pasture	4	955	84
Riparian willow forest	3	84	7
Conifer forestry plantation	12	41	4
Conifer-broadleaf woodland/shelterbelt	10	28	3
Eucalypt plantation/woodland/shelterbelt	3	13	1
Gorse-broom shrubland	3	3	<1
Wetland (flaxland and sedgeland) vegetation	4	10	1

Note: Information based on Kingett Mitchell field survey undertaken in spring 2005.

Table 9: Significant sites within the reservoir proposed inundation area of the Wainiwaniwa Valley.

Source database	Code	Site description	Area (ha)	Field check
Protected lands (DOC 2005)	L35146	The land is vested with SDC and is designated as a gravel pit for the future extraction of aggregate.	0.9	The land is utilized as pasture by the local farmer.
Protected lands (DOC 2005)	L35148	The land is vested with SDC and is designated as a gravel pit for the future extraction of aggregate.	2.0	The land is utilized as pasture by the local farmer.
Protected lands (DOC 2005)	L35169	According to the DOC protected lands database this land is vested with SDC and is designated as an esplanade reserve however it is not acknowledged in the current SDC District Plan.	0.4	The esplanade reserve is in two equivalent parts on either side of the Bush Gully Road stream at the confluence with the Wainiwaniwa River. The land is partly rough roadside grassland and riparian willow forest with a grazed grassland understorey.
Wetland polygon (ECan)	937	Photo-identified artificial waterbody behind a dam with no obvious wetland vegetation.	2.8	Unchecked.
Wetland polygon (ECan)	936	Photo-identified wetland in old channel meander, one of several in the area.	0.3	Unchecked.

Table 10: Significant wetlands down gradient of the CPW irrigation area.

Wetland name	Associated waterway	Description
Yarrs Lagoon	LII River	This site is classified as a Site of Significant Wildlife Interest (SSWI) and provides valuable habitat for waterfowl and a refuge for wetland plants. A diverse indigenous wetland plant community occurs beneath a willow canopy.
Harts Creek Sedgeland	Lower Harts Creek	A healthy and impressive stand of <i>Carex secta</i> sedgeland within and beside the lower Harts Creek channel. It is the only large area of dense <i>Carex secta</i> on the lower plains.
Coes Ford Flaxland	Selwyn River	A small but dense flaxland on the floodplain of the Selwyn River. It comprises typical lowland Canterbury wetland species.
Coopers Lagoon	Outlet of Young's Creek	A brackish coastal lagoon impounded behind a shingle beach at the outlet of Young's Creek, north of the Rakaia River mouth. It is a Site of Significant Wildlife Interest of high regional importance because of its habitat value for waterfowl and uncommon migrant waders. The vegetation comprises good stands of wetland plant species in a relatively small area. The site is gazetted as a Government Purpose Reserve (Wildlife Management).
Motukarara Wetlands	Halswell River	A wetland system beside the slow-moving lower Halswell River and is classified as a Recommended Area for Protection. Vegetation includes a variety of indigenous species including large <i>Cyperus ustulatus</i> tussocks at their approximate southern limit and <i>Baumea rubiginosa</i> which is rare in Canterbury.

Note: Source: Environment Canterbury and Department of Conservation wetland databases.

Table 11: Significant wetlands and waterways in the Christchurch urban area.

Site	Habitat type	Significance	Vegetation	Fauna
Travis Wetland Nature Heritage Park	Lowland freshwater wetland		Wetland species Manuka Spider orchid Native sundew	35 native birds Indigenous skink Native shortfin eel Canterbury mudfish
Brooklands Lagoon	Estuarine rivermouth	Wetland of Ecological and Regional Importance (WERI)	Freshwater, salt marsh and reed swamp/mudflat wetland vegetation	High fisheries values 74 bird species
Styx Mill Conservation Reserve	Narrow riparian reserve		Significant wetland habitat. Diverse vegetation communities including locally uncommon species	20 wetland bird species
Riccarton Bush	Kahikatea/pokaka swampland	Oldest protected natural area in the country	400 – 600 year old kahikatea, totara, matai, kowhai and hinau	

Table 12: Bird species present in the CPW area.

Species name	Common name	Threat status / significance	WV	LE	WRR	ISA	LWB
<i>Anarhynchus frontalis</i>	ngutu-parore, wrybill	nationally vulnerable		✓	✓		
<i>Anas gracilis</i>	tete, grey teal	taonga species		✓			✓
<i>Anas platyrhynchos</i>	mallard duck	gamebird		✓			
<i>Anas platyrhynchos platyrhynchos*</i>	mallard		✓			✓	
<i>Anser anser*</i>	domestic greylag goose		✓			✓	
<i>Arenaria interpres</i>	turnstone	migrant		✓			
<i>Arias aucklandica chlorotis</i>	pateke/ tarawhatu, brown teal	taonga species		✓			
<i>Arias rhynchotis</i>	kuruwhengi, Australasian/New Zealand shoveler	gamebird, taonga species		✓			✓
<i>Arias superciliosa superciliosa</i>	parera, grey duck			✓			
<i>Aythya novaeseelandiae</i>	black teal, New Zealand scaup						✓
<i>Botaurus poidioptilus</i>	matukuhurepo, Australasian bittern	nationally endangered		✓			✓
<i>Branta canadensis</i>	Canada goose	gamebird		✓			
<i>Bubulcus ibis coromandus</i>	cattle egret						✓
<i>Calidris ferruginea</i>	curlew sandpiper	migrant		✓			
<i>Calidris minuta</i>	little stint	migrant		✓			
<i>Calidris tenuirostris</i>	great knot	migrant		✓			
<i>Charadrius bicinctus bicinctus</i>	powhera, tuturiwhatu, banded dotterel	gradual decline, taonga species		✓	✓		
<i>Charadrius melanops</i>	Black-fronted dotterel						✓
<i>Circus approximans</i>	Australasian harrier, kahu		✓			✓	
<i>Cygnus atratus</i>	kaki anu, black swan	gamebird, important species to Ngai Tahu		✓			
<i>Egretta alba modesta</i>	kotuku, white heron	nationally critical, taonga species		✓			
<i>Fulica atra australis</i>	coot						✓
<i>Gerygone igata</i>	riroriro, grey warbler		✓			✓	
<i>Gymnorhina hypoleuca*</i>	white-backed magpie		✓			✓	

Species name	Common name	Threat status / significance	WV	LE	WRR	ISA	LWB
<i>Haematopus ostralegus finschi</i>	South Island pied oystercatcher				✓		
<i>Himantopus himantopus leucocephalus</i>	poaka, pied stilt	taonga species		✓			
<i>Himantopus novaezelandiae</i>	kakl, black stilt	nationally critical, taonga species		✓	✓		
<i>Hirundo tahitica neoxena</i>	welcome swallow		✓			✓	
<i>Larus bulleri</i>	akiaki, katate, black-billed gull	serious decline		✓	✓		✓
<i>Larus dominicanus dominicanus</i>	karoro, southern black-backed gull	taonga species	✓	✓	✓		
<i>Limicola falcinellus</i>	broad-billed sandpiper	migrant		✓			
<i>Limosa lapponica</i>	kuaka, bar-tailed godwit	migrant		✓			✓
<i>Limosa limosa</i>	kuaka, rakakao, black-tailed godwit	migrant		✓			✓
<i>Passer domesticus*</i>	house sparrow		✓			✓	
<i>Phalacrocorax carbo novaehollandiae</i>	koau, black shag	sparse, taonga species		✓			
<i>Phalacrocorax melanoleucos brevirostris</i>	kawaupakakoau, little shag	taonga species		✓			✓
<i>Phalacrocorax varius</i>	karuhiruhi, pied shag				✓		
<i>Phalaropus fulicaria</i>	grey phalarope	migrant		✓			
<i>Phalaropus lobatus</i>	red-necked phalarope	migrant		✓			
<i>Podiceps cristatus</i>	Australasian crested grebe				✓		
<i>Porphyrio melanotus</i>	pukekopakura, pukeko	gamebird, taonga species		✓			✓
<i>Porzana pusilla affinis</i>	koitareke, marsh crake	sparse		✓			
<i>Porzana tabuensis plumbea</i>	putoto, spotless crake	sparse		✓			
<i>Rhipidura fuliginosa fuliginosa</i>	South Island fantail, piwakawaka		✓			✓	
<i>Sterna albifrons</i>	tara, little tern	taonga species		✓			
<i>Sterna albifrons</i>	sanderling	migrant		✓			
<i>Sterna albobriata</i>	tara, black-fronted tern	serious decline, taonga species		✓	✓		✓
<i>Sterna caspia</i>	taranui, caspian tern	nationally vulnerable, taonga species		✓			

Species name	Common name	Threat status / significance	WV	LE	WRR	ISA	LWB
<i>Sterna striata striata</i>	takitaki, tara, white-fronted tern	gradual decline		✓			
<i>Sturnus vulgaris</i> *	starling		✓			✓	
<i>Tadorna variegata</i>	putakitaki, paradise shelduck	taonga species, gamebird	✓	✓		✓	✓
<i>Todiramphus sanctus</i>	kotare, kingfisher	taonga species		✓			
<i>Tringa stagnatilis</i>	marsh sandpiper	migrant		✓			
<i>Turdus merula</i> *	blackbird		✓			✓	
<i>Turdus philomelos</i> *	song thrush		✓			✓	
<i>Vanellus miles novaehollandiae</i> *	spur-winged plover		✓			✓	

Note: WV: Waianiwaniwa Valley
 LE: Lake Ellesmere
 WRR: Waimakariri and Rakaia Rivers
 ISA: Irrigation Supply Area
 LWB: Lowland Water Bodies
 Information adapted from Te Runanga o Ngai Tahu and the Department of Conservation (2004)
 Threat status after Molloy et al. (2001)

