Wetland inventory and monitoring in Southland

Recent work to advance reporting on wetland state in the region

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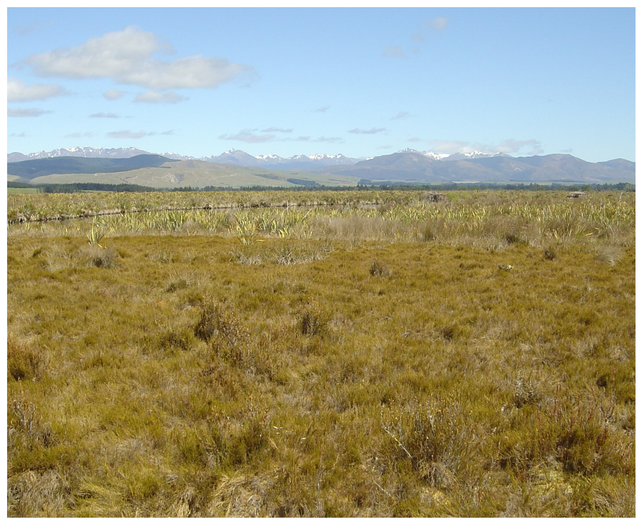
Background

- Wetlands collectively contain a large range of ecological values and perform valuable ecosystem services.
- Nationally, and regionally in Southland, approximately 90% of wetlands have been lost since the mid-1800s.
- Wetlands on private land have been a national priority for protection since 2007, however little recent data is available regionally or nationally on wetland state.
- Lack of accurate delineation of wetland extent has been identified as a barrier to protection and reporting on wetland state.

Castle Downs wetland – a large inland bog also containing swamp and fen wetland types (Photo: Brian Rance)



Methods

- Wetlands in Southland were inventoried on private conservation land with a manual digitisation approach using aerial photography from 2007 to provide a baseline of wetland extent.
- 1,606 wetland polygons >0.5ha were spatially defined and then compared mostly on aerial photography from 2014/15 to monitor wetland extent.

Waituna Wetland – threats to wetland extent, continued drainage and clearance on private land. (Photo: Department of Conservation).

Results

- Wetland loss was considerably higher in lowland areas compared with inland basin and hill country areas (see Map 1).
- In lowland areas, 128 wetland polygons (22%) were either lost or decreased in extent between 2007 and 2014/15, with a total loss of extent of 1,165ha (see Table 1).
- Wetland loss was around 1.5% per year in lowland areas.
- Wetland loss in lowland areas was broadly proportional to land use (see Figure 1).

Map 1. Changes to wetlands in Southland 2007–2015

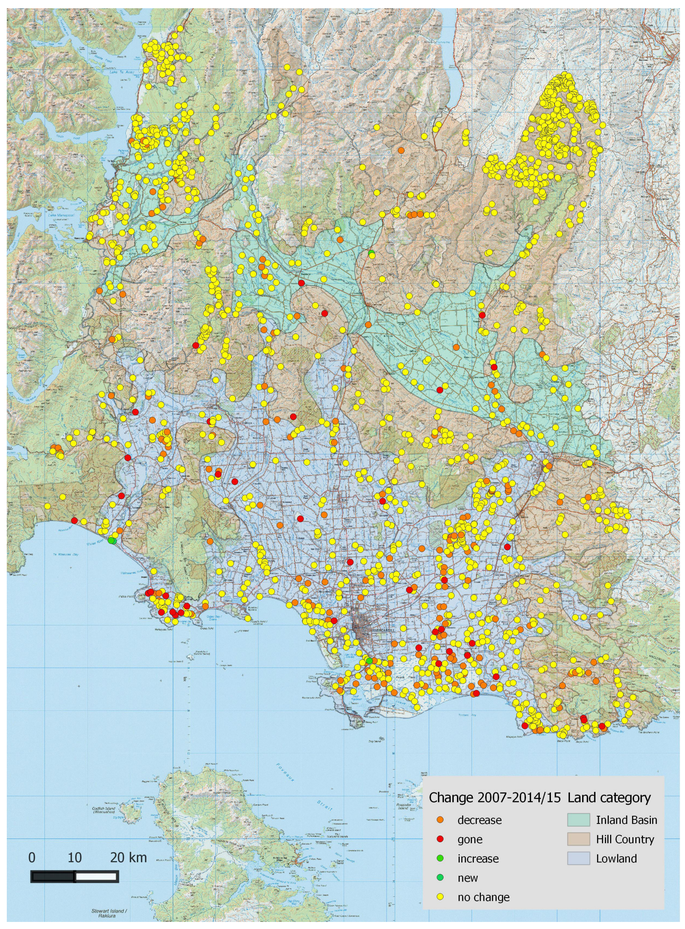
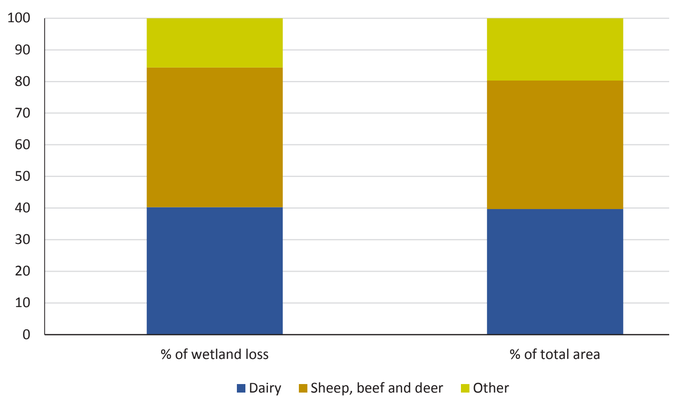


Table 1. Summary of wetland polygons mapped and compared on 2007 and 2014/15 aerial photography.

	LOWLAND	INLAND BASIN	HILL COUNTRY	TOTAL
Number of wetland polygons mapped on 2007 aerial photography	585	194	827*	1,606
Total area (ha) of wetland polygons mapped on 2007 aerial photography	10,827	3,765	6,080	20,672
Number of wetland polygons lost or with decreased extent between 2007 & 2014/15	128	22	44	194
Total area (ha) lost from wetland polygons between 2007 & 2014/15	1,165	35	115	1,315

*A large proportion of the wetland polygons mapped in the Hill Country land category were in the extensive alpine wetland system located in the southern end of the Garvie Mountains.

Figure 1. Proportion of wetland loss between 2007 and 2014/15 on different land uses and the overall proportion of each land use in lowland Southland.



Discussion and conclusions

- Wetland loss continues in Southland despite abundant national and regional policy designed to protect them.
- Although many wetlands lost or reduced in extent appeared to be of poor or moderate quality, some good quality wetland areas that were highly likely to meet significance criteria were still modified or lost, and even poor quality wetlands are likely to be providing some level of ecosystem service.
- The conversion of even poor or moderate quality wetlands to pasture is likely to amplify nutrient losses to receiving waters by both reducing nutrient interception properties and by increasing the land area upon which agricultural nutrients are applied.
- The Southland region now has a comprehensive inventory of wetlands for the region.
- This tool can help improve wetland outcomes by informing consent, compliance and land sustainability work streams, identifying an expanded set of significant wetlands in the region, and providing long-term monitoring of wetland extent.

A wetland near Kapuka South in 2007....

...the same wetland in 2014, with a wetland loss of 15 ha