

SHORT NOTE

The effects of an abnormally cold winter spell on Southland birds

The occurrence of extreme events in the environment is beyond doubt. However, the detailed study and the recognition of their contribution to the ecology of animals is often problematic (Lawton 1997). The influence on birds of extreme weather events is recognised (Elkins 1983) but not sufficiently documented, especially in countries like New Zealand. The 50-year index of Notornis (Heather & Sheehan 1990) does not have a single entry under any of the following keywords: storm, wind, weather, winter or mortality. This does not necessarily imply that information on the above is lacking from the pages of Notornis (especially beach patrol reports contain reference to many of the above), but probably indicates a perception that these are not worthy of documenting. To contribute to amending this situation, in the following I collated observations of strange behaviour and mortality in birds during the 1996 cold winter spell in Southland.

Between 1 and 14 July 1996, the southern region of the South Island experienced abnormally cold weather conditions. These were due to a snowfall of 5cm on 1 - 2 July combining with a stationary high pressure zone to create a freezer-like effect. It was so cold that thick layers of ice formed on streams, ponds, and around the edge of the Invercargill Estuary. The coldest ground frost, -14.2°C , was recorded on the morning of 14 July 1996.

Because heavy frosts followed immediately after the snow, the surface of many paddocks became inaccessibly hard to large ground-feeding birds, resulting in mortality and strange feeding habits.

On 17 August 1996, along the 27 km stretch of road between Invercargill and Winton, I counted road kills of 244 Black-billed Gulls (*Larus bulleri*), three Southern Black-backed Gulls (*Larus dominicanus*), two Spur-winged Plovers (*Vanellus miles*), and one each of Australasian Harrier (*Circus approximans*), and Australian Magpie (*Gymnorhina tibicen*). These birds landed on the asphalt surface, as the snow and ice melted there first due to traffic and the warmth of the road. They were then hit by passing cars. Some birds came to scavenge on the carcasses, and were killed the same way themselves. Black-billed Gulls were seen feeding on fresh road-killed gulls and Australasian Harriers (A. Robbie pers. comm.).

Further mortalities reported include seven Spur-winged Plovers and one Australian Magpie, found dead on a 250 acre farm at Nightcaps (M. McConnachie pers. comm.). Five Spur-winged Plovers were found dead on a Ryal Bush property (A. Robbie pers. comm.). Nine lethargic Spur-winged Plovers seen one evening near Gore, were all dead the next morning (L. Esler pers. comm.).

The cold spell killed not only large ground-feeding birds. At Omaui, near Invercargill, a small flock of Chaffinches (*Fringilla coelebs*) were seen sheltering together one evening, and were all dead the next morning. (R. Beck pers. comm.).

A large increase in the numbers of birds feeding at bird tables was noticed. One bird table that usually hosted up to twenty House Sparrows (*Passer domesticus*), ten Silvereyes (*Zosterops lateralis*), and two Chaffinches, received a 100% increase in bird numbers. (T. Hook, pers. comm.). Australian Magpies, Black-billed Gulls, Red-billed Gulls (*Larus novaehollandiae*) and Spur-winged Plovers fed at bird tables and off lawn (M. Scott pers. comm.).

Song Thrushes (*Turdus philomelos*) were seen trying to open bread crusts as they would a snail, and feeding on mince (T. Hook pers. comm.). One Australasian Harrier came up to a ranchslider and ate a piece of bread that was on the ground just outside it. (A. Robbie pers. comm.).

Silvereyes, wary of the cold ground were observed landing on the backs of House Sparrows, rather than the snow. (T. Hook pers. comm.). Small pasture-feeding passerines were quick to take advantage of feeding opportunities, where sheep had scraped away the snow to get at the grass (M. McConnachie pers. comm.).

The cold spell also destroyed a lot of plants. Many southern gardens were damaged severely as snow froze on the leaves of the plants, killing them. In Seaward Bush, near Invercargill, most of the small trees such as pate (*Schefflera digitata*), kotukutuku (*Fuchsia excorticata*), and red matipo (*Myrsine australis*) were killed.

The cold weather seems to have had a serious effect on numbers of bush-dwelling birds such as Fantails (*Rhipidura fuliginosa*), Brown Creepers (*Moboua novaeseelandiae*), Grey Warblers (*Gerygone igata*), and Bellbirds (*Anthornis melanura*). These species were almost absent from many areas of bush in Southland for a long time after the cold weather, but are slowly returning in numbers (L. Esler pers. comm.).

Most of the above data relate to larger, ground-feeding birds. These are not only more affected by extreme weather events, but are also easier to discover. Small birds often perish unseen, and their carcasses quickly disappear (Elkins 1983); the effects are mostly seen by the lower population densities for some time afterwards. The reported slow recovery of the small bush birds of Southland is typical of small species recovery pattern (Elkins 1983). The population consequences of such events much depend on the species' biology, the severity and extent of the weather extreme. For example, Southland has a group of wintering Cattle Egrets (*Bubulcus ibis*). The usual size of this group is between 30 and 50 birds. They may have been affected by the cold spell but records are inconclusive. 39 Cattle Egrets wintered in Southland in 1993, 36 in 1994, 41 in 1995, 250 in 1996, 45 in 1997, and 59 in 1998. It is unknown why there was a large influx of Cattle Egrets in Southland during the winter of 1996, but this is the only peak in a steady trend.

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