



Yellowheads in decline

Angela Davidson *

The yellowhead is a small native bird found only in the South Island, and is rapidly making its way towards the top of a long list of threatened species in New Zealand.

They are now present in only 25 per cent of their original natural range and most of the reduction has occurred in the last 20 years.

In the Landsborough Valley, one of their previous strongholds on the West Coast, there has been an 85 per cent decline in population over the last six years.

On the Coast, their situation is precarious, to say the least.

Last century, yellowheads were one of the most common forest species in the South Island. In 1888, a flock of 200 yellowheads were spotted in the Lake Brunner district. The birds started to decline by the end of the century and by 1930 yellowheads had disappeared from many places, including Stewart Island, Nelson, Marlborough and much of the West Coast.

They held their ground in North Westland and outlying areas of Otago and Southland until the 1950s, but unfortunately most records stop soon afterwards.

Now the yellowheads' stronghold lies in Fiordland and Mt Aspiring National Parks where they are widely distributed and may still be in their thousands. The Landsborough Valley has the only known yellowhead population on the West Coast. The only other sizeable population north of the Landsborough is found in the Hawdon Valley in Arthur's Pass where around 150 birds exist.

Decline confirmed

A survey of the yellowhead population in the Landsborough Valley this year by the Department of Conservation confirms the yellowheads' decline. Using standard bird-surveying techniques, conservation officers John Lyall and Glen McDonald followed the 1000 yard grid squares mapped out by a New Zealand Wildlife Service survey in 1985.

During the 1985 survey, 163 yellowheads were recorded in 30 grid squares compared with 24 in the same 30 squares this year – a reduction of 85 per cent.

The survey was carried out in January when the birds are nesting and vocal. The birds frequently call with a "clicking" noise, and fortunately it is easily heard as walking through forest with your eyes skywards is uncomfortable, if not positively dangerous.

Their bright yellow head and breast makes them easy to spot, says Lyall, even though they spend most of their time in the forest canopy's upper storey.

Unlike their South Island counterpart, the brown creeper, and the North Island whitehead, yellowheads nest in holes, making them open slather for stoats and other predators. Stoats are the main cause for their dramatic decline in the Eglington Valley in Fiordland and Hawdon Valley where yellowhead populations have been monitored since 1983/84.

The huge decline in the Landsborough population points to the same conclusion.

Stoat plagues follow a heavy beech seed year, says Lyall. These occur around January every four to 11 years and the increased food source means healthy mice during the year and a population explosion the following spring. This, in turn, is followed by an eruption of stoats which eventually fall in numbers after peaking in the summer.

A stoat plague can be predicted following a boom beech seeding or mast year, and a consequent fall in yellowhead numbers can be expected. The birds have a low recovery rate and they seldom recover to the population's previous size.

Depending on how frequently a stoat plague occurs, the population could fast track its way to extinction.

Using hole nests for breeding means the adult yellowhead and eggs are easy game for stoats, as there is no escape once the stoat appears at the entrance.

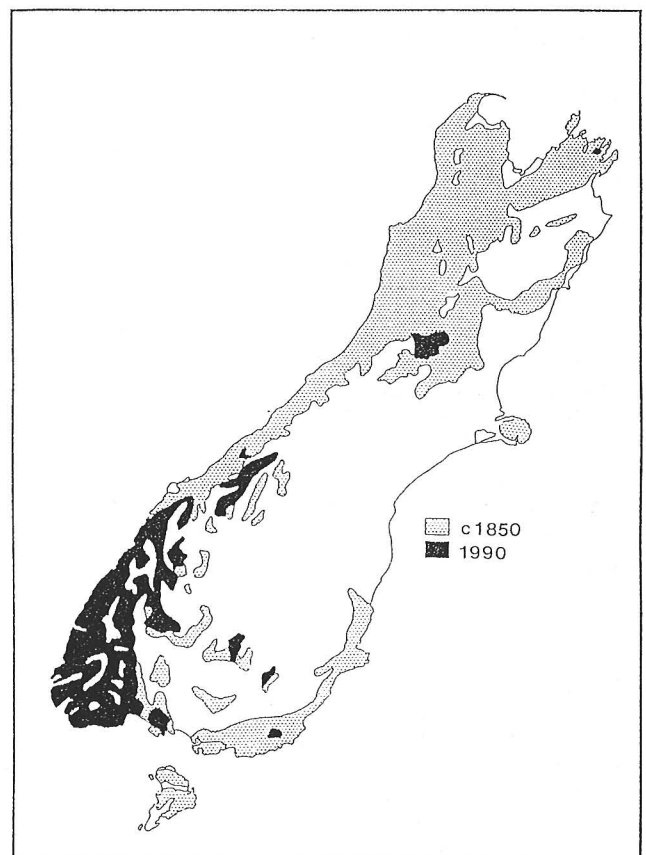


Figure 1. The distribution of yellowheads in 1850 and 1990. (From O'Donnell C.F.J. and Elliott G. Yellowhead (Mohua) Recovery Plan 1991-1996. Department of Conservation.)

* Department of Conservation, West Coast.

Male surplus

Because only female birds incubate the eggs, nest attacking leaves a surplus of male birds, which creates an imbalance and threatens further breeding.

The yellowheads also incubate their eggs for about two weeks longer than other passerine or small perching birds, making them further vulnerable to predators when stoat numbers reach their summer peak.

The birds will also spend long periods feeding on, or close to the ground, which makes them conspicuous targets for predators.

But not just the stoat is responsible for the yellowhead decline. The late breeding and long periods of juvenile dependence means the adult yellowheads are still feeding their young when wasp numbers reach their peak in autumn. Changes in the forest structure through clearing river terraces, deer and possum browsing and an influx of exotic birds all add to the bird's vulnerability.

It is this vulnerability which underlies the urgency for yellowhead management, stresses Lyall.

In contrast to the yellowhead's bad luck story so far, the birds have a good potential for recovery with active management. Yellowheads lay up to four eggs at a time and are capable of raising two broods a year.

Lyall recommends intensive and localised stoat trapping to

minimise the damage to the yellowheads' rapidly declining population in the Landsborough Valley.

Five years of intensive stoat trapping will give the birds a chance to increase in numbers, followed by only trapping during stoat eruption years.

Stoat trapping in parts of the Landsborough will be carried out by DOC's West Coast conservancy this coming spring.

Nationally, a Yellowhead Recovery Group formed by the Department of Conservation recommends several other options for the bird alongside predator control programmes in key yellowhead populations.

These are establishing captive holding, breeding and release programmes, placing yellowheads on predator-free islands as an insurance against their extinction on the mainland, and reducing the logging of Southland indigenous forest where yellowheads exist.

Meanwhile, monitoring key population sites to determine trends and areas will provide a focus for future yellowhead management. With this sort of attention, the yellowheads' future is not exactly rosy but is developing a pink tinge in managed areas. The yellowhead is one of New Zealand's rarest forest birds which still exists in publicly-accessible forests.

The yellowhead deserves the management other threatened birds are receiving, says Lyall. It is a unique bird, in a critical position and our forests will be all the poorer if it disappears.

Slash retention a viable option to ensure sustained site productivity?

J.M. Balneaves¹ and W.J. Dyck²

Abstract

The impact of logging and site preparation on nutrient reserves on the planting site and the likely consequences of this on long-term site productivity are discussed. New material on the impact of logging and windrowing on site nutrients on the stony Lismore soils on the Canterbury Plains is presented. Harvesting the previous crop removed 5% of total N and 26% of available P from the site. Windrowing increased this loss to 40% and 62%, respectively. To avoid such losses, which will inevitably result in a marked decline in forest productivity, as much slash as possible should be retained on site. Future research should concentrate on maintaining existing trials to determine long-term trends, critically evaluating logging practices, and developing appropriate site-preparation tools to restore maximum productivity to the site while ensuring slash retention to achieve nutrient recycling.

Introduction

Concern over the ability of many forest sites in New Zealand to sustain current levels of productivity over two or more rotations of radiata pine (*Pinus radiata*) stemmed initially from studies that explored the influence of site-preparation practices on long-term site productivity, as measured by tree response to treatment (e.g., Chavasse 1967, 1969, 1972, 1981; Ballard 1978a, Adams 1978, Dyck et al. 1989).

Direct comparisons between first and later rotations have not been possible as changes in land preparation, weed control, tending practices, and genetic improvement have usually improved forest productivity. However, such improvements have little, if anything, to do with the site-quality characteristics described by Dyck and Beets (1987) as fundamental to long-term site productivity:

- The nutrient reserves of the site.
- The amount of nutrients removed during harvesting.
- The type and intensity of post-logging site preparation operations and their impact on soil nutrition and porosity.

Studies over the past decade on the effect of windrowing and soil compaction on the growth of subsequent radiata pine crops have confirmed that some current forest-harvesting and site-preparation practices can reduce site quality (Dyck et al. 1989, Balneaves 1990). Substantial losses of soil organic matter and nutrient reserves, loss of top soil, and reduced access by roots to the soil because of compaction all contribute to a decline in site quality (Skinner et al. 1989).

Improved technology may be able to replace lost nutrients, reduce compaction and weed competition, and enhance growth and yield on sites where productive capacity has been reduced, but if economic or environmental considerations restrict the use of appropriate technologies in the future, forests yields will decline on degraded sites. For example, fertiliser use can replace nutrients, at least temporarily, but will not necessarily result in the replacement of soil organic matter, which plays an important role in soil fertility, moisture, structure, aeration, and erosion resistance.

The forest industry in New Zealand must increasingly depend on and respect the natural mechanisms that sustain site

¹ Forest Research Institute, P.O. Box 31-011, Christchurch

² Forest Research Institute, Private Bag 3020, Rotorua