



ARGOS RESEARCH NOTE: NUMBER 18, NOVEMBER 2006

Birds on sheep/beef farms

Surveying birds

Biodiversity on New Zealand's farmed landscapes has received very little study, and so a first step in the ARGOS project is describing what biodiversity is present on farms now before we can go on to research how it responds to different habitats, landscapes and farming system practices. As part of this process, we measured bird community composition and relative abundance on ARGOS sheep/beef farms and kiwifruit orchards. The monitoring of birds on farms and orchards is one valuable approach to increase our ecological understanding of production landscapes. Birds can be excellent indicators of wider environmental health, they are generally more familiar to farmers than many other taxa, and they are good tools to measure the progress of sustainable development.

We counted birds on three different farming systems within the sheep/beef sector certified organic, Integrated Management (IM), and conventional. The ARGOS project is evaluating these three farming systems as different pathways to improved sustainability. Birds were surveyed using 'distance sampling' and 'five-minute count methods (these methods are explained in research note 17). Counts were undertaken once at each survey point. Each farm was surveyed once between 16th November 2004 and 29th January 2005.

Survey sites

Birds were surveyed on ARGOS's lowland sheep/beef farms. The sheep/beef farms are arranged into 'clusters' spread from Marlborough to Southland in eastern South Island. Each cluster had a certified organic farm, an IM farm and a conventional farm. In this research note, we'll report on the number of birds seen or heard on 337 sites from 37 sheep/beef farms (for data on the kiwifruit surveys, see Research Note 19).

Results

On average we recorded over 15 different species on each sheep/beef farm in the study, with the majority of those species (around 80%) being introduced birds such as blackbirds, starlings, magpies, and small finches such as the greenfinch, house sparrow and yellowhammer. However, we did find some species of native birds were common on many of the farms, such as pied oystercatchers and black-backed seagulls. We also found a good range of native forest birds such as tuis, bellbirds, fantails and wood pigeons on farms with more native trees on them (such as in the Catlins or on Banks Peninsula).

There was no evidence of differences in the numbers of individual birds or the numbers of species recorded in organic, IM or conventional sheep/beef farms, with differences in habitat seeming to be more important than the farming system (for example, there was more of a difference in

the bird communities found on farms on the Canterbury Plains and in the Catlins than there was between organic, IM or conventional farms. This supports the ARGOS hypothesis that there are fewer environmental differences between different farming systems in less intensive farming sectors such as sheep/beef.

Many of the participating farmers had a good knowledge of the birds on their farms, particularly the iconic native species such as bellbirds and fantails, and were keenly interested in the results of the surveys.

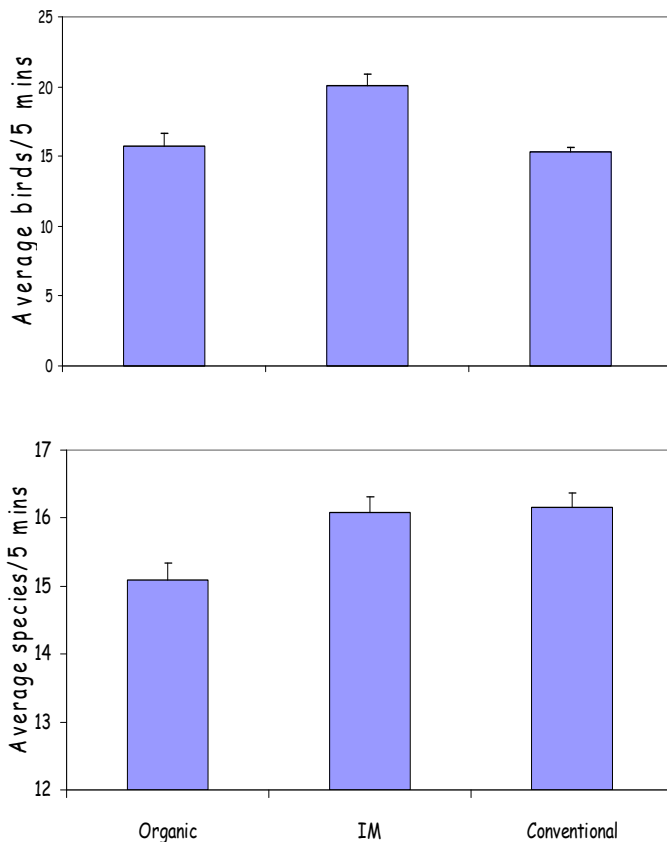


Figure 1. *Top:* Average number of individual birds per 5 minute survey on each ARGOS sheep/beef farm operating under an organic, integrated management (IM) or conventional farming systems. *Bottom:* Average number of bird species per 5 minute survey on each ARGOS sheep/beef farm.

Conclusions and further surveys

Our surveys highlighted the abundant and variable bird communities found on South Island sheep/beef farms. Up to a fifth of the

birds present on a farm were native species, and many of these were well known to the individual farmers. The type of management system applied on a farm did not have a major impact on the birds found there. Rather, things such as whether the farm had remnant patches of native bush or pine or macrocarpa shelterbelts, and whether arable crops, hay paddocks and other food sources for birds were present, seemed to be much more important in shaping the bird community.

The next step in the research is to gain a better understanding of the distributions and numbers of some of the bird species found. Specifically, we want to know what factors are affecting their numbers, whether there are economically sustainable ways to maintain or enhance those species, and whether we can use some of the birds found as indicators of sustainable practices. These indicators may include native species such as tui and bellbirds (that are known to be threatened by habitat removal and introduced mammals such as stoats and rats), or introduced species such as skylarks or yellowhammers, which are known to decline in the face of severe agricultural intensification.

Information from this and future surveys will be used to find sustainable ways that farmers can maintain preferred species (such as wood pigeons or fantails) on their farm, minimize the impacts of pest birds, and maintain market access by demonstrating the environmental performance of their farming operation.

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