

BASIC PROCESSING OF MT LOFTY RANGES BIRD RECORDS FROM STRINGYBARK WOODLAND HABITAT: YEAR 2002 SURVEY

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M. L. Possingham. 10 River St, Marden, 5070, S A, Australia. E-mail mlposs7@bigpond.com.

H. P. Possingham. The Ecology Centre, The University of Queensland, St Lucia, 4072, QLD, Australia.

ABSTRACT

As a part on the on-going bird survey of the Mt Lofty Ranges in South Australia, 15 observers sampled 88 sites in 48 patches of stringybark woodland during the spring and summer of 2002. Each patch contained one or more 2 ha sites that were visited for three 20 min periods on different days. This is an abridged version of the reports on the three previous yearly surveys published in the SAOA Journal. Its purpose is to place the results of processing the basic records in the public forum for further use. Three lists summarise the data; one categorises the records by species, another by site and the third by sample. The report is only available on the Web.

INTRODUCTION

During the spring and summer of 2002, the fourth year of the long-term bird survey of the Mt Lofty Ranges in South Australia, we covered the stringybark and gum woodland habitats. This report gives the results of basic processing the records from 48 patches containing 88 sites of stringybark woodland habitat. Previous reports are Possingham, M. L., Field, S. A. and Possingham H. P. 2004 (the SB99-00 survey), Possingham, M. L., Field, S. A. and Possingham, H. P. 2006 (the SB00-01 survey), both on the stringybark woodland habitat and Possingham, M. L. and Possingham, H. P. 2008, submitted (the GUM00-01 survey) on the gum woodland habitat. More recent versions of these reports are available from the Web Site. This report follows on from these earlier surveys and places the records and basic analysis on the Web for access by other users.

This survey is referred to as the SB02-03 survey and uses a reduced version of the survey design used for the previous 1999, 2000 and 2001 surveys, ie only three independent 20 min samples were used for each site.

Three tables are the result of processing the basic records.

- Table 1 reduces all the records to the bird numbers recorded by species and sample ignoring the sites, this is termed a species list.
- Table 2 reduces all the records to the species counts recorded by site and sample ignoring the actual species names, this is termed a site list.
- Table 3 lists the on-site bird numbers recorded by species for the three samples of each of the 92 sites, this is termed a sample list.

METHODS

From 20th of September 2002 to 28th of December 2002, 15 observers visited 88 sites in 48 patches of stringybark woodland. Figure 1 in the SB99-00 report indicates the location of the sites and Table 2 in this report gives the coordinates. Birds were recorded for three 20 min periods on different days by different observers in the 5 hours following sunrise using an unstructured plan for the 264 visits. The three 20 min visits to each site are termed Sessions 1, 2 and 3 with each Session having one Pass (ie a visit) each termed a sample. This somewhat cumbersome naming system is used to retain consistency with the previous surveys.

The reports on the SB99-00 and SB00-01 surveys give: definitions of patch and site, the techniques used to record the on-site, overhead-transient and off-site observations, how to avoid duplicate records, and the methods of extracting species sightings and number of birds recorded during a sample for subsequent analysis. The Record Sheets and recording procedure were the same as used for the previous surveys.

RESULTS

The 15 observers completed 264 Record Sheets and contributed 88 hours observation time plus much more travelling time. The observations resulted in 2719 on-site, 1883 off-site and 283 overhead-transient entries on the Record Sheets. For each sample, records of the number of on-site, overhead transient and off-site birds of each species, and any breeding activity together with other survey parameters. eg time and date

were entered into a *Microsoft Access 2000* database at the Nature Conservation Society of S.A.. A copy of this database in *Access 97* format is available from this Web site.

Species List

Table 1 summarises the records for all species from the three samples of the 88 sites; scientific names for these species may be obtained from Christides and Boles (1994); a copy of this information appears in SAOA (1996). The table shows the:

- total number of birds for each species recorded on-site, off-site and overhead-transients,
- number of birds for each of the three samples,
- total number of species sighted for the three samples combined and
- probability of recording and the density of the on-site species.

(Note that, in this table, the Total On-Site Sightings is the sum over the three samples. So a species could be sighted a maximum of 264 times (88 sites x 3 samples).

Of the 79 species recorded overall, 71 were recorded on-site, 33 as overhead transients and 62 off-site.

Eight species were recorded as not occupying a site; one of these (marked + in Table 1) is obviously associated with a nearby wetland or grassland. Another two (marked ++) could be classed as not bush birds and four (marked +++) are bush-birds that could have been recorded on-site, ie utilising a 2 ha site of the stringybark woodland habitat. The remaining one species (marked +++) was recorded off-site at a very low frequency and could be considered as vagrant in this habitat. Four introduced species were recorded; they are Skylark *Alauda arvensis*, European Goldfinch *Carduelis carduelis*, Common Blackbird *Turdus merula* and Common Starling *Sturnus vulgaris*.

The probability of recording a species in a 2 ha site during a 20 min sample, P_{re} has been computed directly from the number of sightings for each of the 71 on-site species from the three samples. It is computed from the total number of sightings for these 71 species divided by the total number of samples, ie 264. See the SB99-00 survey report for a discussion of the precision of P_{re} . The three samples are independent in that they are by different observers on different days and at different times past sunrise. Bird density is computed from the total on-site birds recorded divided by the total area surveyed ie 528 ha (264x2).

On the basis of P_{re} , we divided the 70 on-site species (Australian Wood Duck omitted) into three groups: those commonly recorded, those uncommonly recorded and those rarely recorded. The five species marked # in Table 1, are those commonly recorded in this habitat; they were sighted more than 158 times, $P_{re} > 0.6$, during the 264 visits. At the other end of the scale, are the 48 species with sightings less than 34, $P_{re} < 0.13$, that are rarely recorded; they are marked with ### in Table 1. The remaining 17 species, marked with ## are uncommonly recorded with sightings between 34 and 158.

Site List

Table 2 shows how the number of species sighted during the three samples vary in space and time. For the three samples combined, Lenswood Recreation Park (Patch-Site 98401) and Twin Oaks (99001) gave the highest number of on-site species with 30 and 27 respectively. Cox's Scrub Sites 4 and 10 (14304 and 14310) gave the least with 8 and 10 respectively. As well as the species count in the bulk of the table, a statistical analysis over the sites is provided.

Sample List

Table 3 gives the bird numbers recorded for each species and each of the three 20 min samples of each Site. Table 3a gives the results for on-site records, 3b for overhead transient records and 3c for off-site records. The table includes, for each species, the number of sightings, the number of birds, the probability of recording and the density (density for the off-site records is omitted) as well as the species sightings for each sample. Survey parameters such as site name and location, data and time, weather and observer are included. This table represents the most detailed presentation of the on-site records from the survey and is only available as an Excel spreadsheet on this Web site.

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