

**3. AVON RIVER WETLAND BIRDLIFE MONITORING  
THE FIRST FIVE YEARS: 1993/94 – 1998/99**

RR 9430

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The purpose of this report is to advise Councillors of the results of birdlife surveys carried out on the Avon River between 1993 and 1999 as a means of measuring habitat enhancement. This report has also been presented to the Parks and Recreation Committee.

**INTRODUCTION**

The successful ecological restoration of a waterway or wetland can be measured in a number of ways - by the establishment and spread of aquatic and riparian vegetation; by measurable improvements in water quality; and by increases in the abundance, distribution and diversity of fish, amphibians, insects and birds. As perhaps the most visible component of waterway fauna, and as a component that relies on the presence of lesser fauna and vegetation for its existence, birdlife can provide an easily “surveyable” indicator of changes in habitat quality and ecological well-being on a waterway.

In 1993/94 a series of bird surveys was carried out for Water Services Unit on a number of Christchurch waterways. The aim of these surveys was to collect baseline data on wetland bird populations (seasonal abundance and species richness). These surveys were repeated five years later in 1998/99 and the following is a brief summary of results for the Avon River.

**METHODS**

A series of bird surveys were carried out monthly between March 1993 and February 1994 along an 8.5 km study area on the Avon River. These surveys were repeated five years later - between April 1998 and March 1999. The study area lay between the Fitzgerald Avenue Bridge and the Wainoni Road Bridge and was designed to provide an assessment of Avon River birdlife without complications arising from estuarine influences downstream, and city centre disturbances upstream. Both sets of surveys were carried out by the same observer using identical methods.

**RESULTS**

Patterns of seasonal abundance for wetland birds on the Avon River were similar between the two survey periods, suggesting that for most species the river supports stable seasonal populations.

Highest bird numbers occur from summer to winter when the resident breeding population is joined by an influx of birds that nest elsewhere. For example, we know from the sighting of marked birds that Black-billed Gulls using the Avon nest at Peacock Springs; Red-billed Gulls come from Kaikoura; Caspian Terns come from Invercargill and White Herons come from Okarito on the West Coast.

Species richness increased markedly in the 1998/99 survey (average of 13.6 species recorded per survey in 1998/99 compared to 9.3 in 1993/94) (see figure 1 attached). Seven new species were recorded in 1998/99, including six new natives – Pied Cormorant, Little Black Cormorant, White Heron, Paradise Shelduck, Pukeko and NZ Kingfisher (two natives – Spur-winged Plover and Caspian Tern were recorded in the first survey, but not the second).

For all months, total numbers of wetland birds counted on the Avon were higher for 1998/99 than for 1993/94 (see figure 2 attached). Many native species increased in number and/or were present on the river for longer periods in the second survey, ie; for a whole season rather than just one or two months.

Numbers of native ducks increased dramatically between surveys: In terms of total numbers, the increase has gone from a range of 0–14 (mean 5.6) in 1993/94 to a range of 54-178 (mean 95.1) in 1998/99 (see figures 3 and 4 attached).

#### **INITIAL CONCLUSIONS**

A definite increase in bird numbers and a significant native enrichment of the Avon River's bird fauna is evident between the 1993/94 and 1998/99 surveys. The most striking change was the increase in native birds which more than doubled from an average per survey of 174 birds in 1993/94 to an average of 380 in 1998/99 (see figure 5 attached.) Native species richness increased also - 15 native wetland bird species were recorded in 1998/99 (mean per survey = 9.7), compared to 11 in 1993/94 (mean = 7.2).

The increase in native birds was spearheaded by New Zealand Scaup – an endemic diving duck with a World population of c.20,000, 15% of which are now resident on Christchurch waterways. In the 1993/94 survey Scaup were only seen once. Between survey periods this species recolonised the Avon River (after having died out 50 years ago) and in 1998/99 Scaup were recorded on all counts with a maximum of 172 birds in July. Several pairs were recorded with young. Numbers of native cormorants, herons, gulls and swallows rose in the second survey also.

The increase observed for “native” ducks has been far out of proportion to the increase in “exotics” (Mallards, etc). This is evidenced by a relative increase

of native waterfowl as a percentage of total waterfowl, from a mean of 0.9% (range 0-3.2%) in 1993/94 to a mean of 10.2 % (range 3.8-22.1%) in 1998/99 (see figure 4 attached). This variance suggests that native ducks are finding niches that were either empty previously or have been recently created, and they are probably **not** being excluded by Mallards.

Increases in bird numbers on the Avon have taken place right across the range of guilds and feeding groups. For example; numbers of cormorants (fish-eaters), Scaup (aquatic insect-eaters), Shoveler (minute aquatic plants and zooplankton eaters), Mallard (insect and plant eaters), Swallows (aerial/aquatic insect-eaters) and Black Swans (aquatic plant feeders) have all risen. This strongly suggests that the cause of change lies **within** the Avon River ecosystem rather than outside. (The effects of outside changes would generally be limited to one or two species only). In terms of nesting and feeding areas, the distribution of native birds particularly, correlates with areas of riparian revegetation and long grass.

The logical conclusion is that bird numbers and species richness have increased at least partly in response to habitat enhancement and to the improved feeding, roosting and nesting opportunities arising from this.

**Chairman's**

**Recommendation:** That the information be received.