Blue Duck Dispersal At Arthur's Pass

Blue Duck (*Hymenolaimus malacorhynchos*) are present only in small scattered populations in river headwaters east of the main divide of the Southern Alps at Arthur's Pass, New Zealand (Cunningham 1991). Interaction between these populations may be limited by mountain barriers between river catchments and by the modification of lower reaches of the rivers (M.J. Williams. 1988. Conservation strategy for Blue Duck 1988-1992. Department of Conservation Unpublished Science and Research Internal Report No.30). Movement between catchments is little known or understood (Marchant & Higgins 1990). A population fragmented into genetically isolated groups is prone to inbreeding and genetic drift and more vulnerable to decline (Lacy 1987). This paper reports observations of Blue Duck dispersal across the main divide at Arthur's Pass, indicating the potential for genetic interaction between populations on either side of the main divide.

Fourteen adult and seven juvenile Blue Ducks have been colour-banded in the upper Otira, Mingha and Deception Valleys between January 1989 and August 1992, all within Arthur's Pass National Park. Five of these birds, banded west of the divide, have been reported in new locations east of the divide.

One male Blue Duck, banded in the upper Otira Valley in September 1989, was sighted in the Deception Valley in February 1990 and then sighted again, across the main divide, in the Mingha Valley in May 1990. Another male, banded as a juvenile in the Otira Valley in January 1991, was sighted in the Mingha Valley in February 1992 and then sighted back in the Otira Valley in June 1992. A female, banded as a juvenile in the Otira Valley in January 1991, was sighted in the White Valley, paired with a male, in May 1992. Another female, banded as a juvenile in the Deception Valley in February 1991, was sighted in the Mingha River, with two other Blue Ducks, in June 1992. Another female, banded as a juvenile in the Deception Valley in February 1992, was sighted on Walker Pass Tarn, on the main divide between the Otehake and Hawdon Valleys, in March 1993, paired with a male.

To cross directly from the Otira River to the Mingha River would require an ascent of 900 metres over a mountain range and a straight-line flight of 6.5 kilometres. To cross directly from the Otira River to the White River would require an ascent of 1100 metres and a straight-line flight of 12 kilometres. To cross directly from the Deception River to Walker Pass Tarn would require an ascent of 900 metres and a straight-line flight of 5.5 kilometres.

The sighting of the banded male in the Deception Valley, after it was sighted in the Otira Valley and before it was sighted in the Mingha River, suggests that dispersing Blue Ducks are more likely to follow river tributaries and low alpine passes than to fly directly across mountain barriers. The distance from the Otira River to the Mingha River, via the lower Otira and Deception Rivers, is approximately 25 kilometres and the ascent over Goat Pass, from the Deception River, is approximately 100 metres. The distance

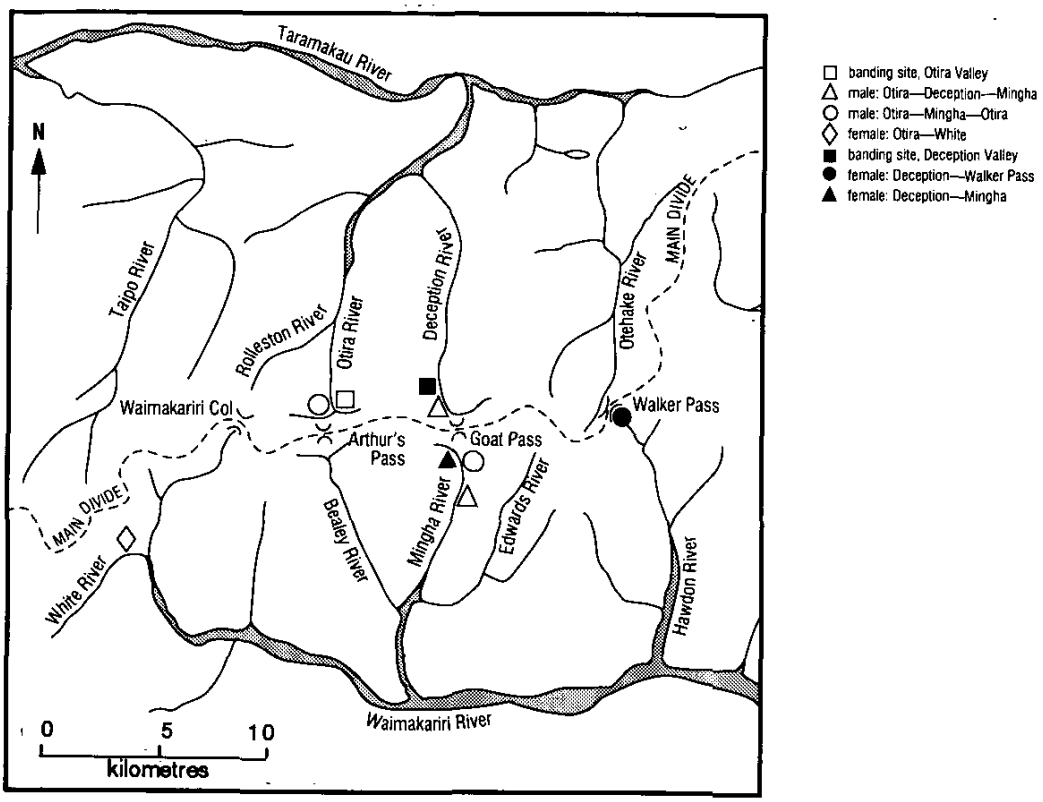

FIGURE 1 – Map of the study area in the Arthur's Pass National Park with the banding and re-sighting locations.

from the Otira River to the White River, via the lower Otira and Rolleston Rivers, is approximately 20 kilometres and the ascent over Waimakariri Col, from the Rolleston River, is approximately 250 metres.

This evidence of the ability, and willingness, of Blue Ducks to cross the main divide is supported by my observations of Blue Ducks at Lake Misery on the summit of Arthur's Pass, and numerous sightings by the public of Blue Ducks at other alpine tarns, particularly Walker Pass Tarn between the Otehake and Hawdon Rivers (Cunningham 1991). It is further supported by my own sightings of single birds in areas at the margin of the present Blue Duck distribution.

These records of Blue Duck dispersal indicate that the small populations in river tributaries east of the main divide may not be genetically isolated and may be sustained by recruitment from larger populations to the west of the divide. Immigration from a large source population can halt or reverse the loss of genetic variation in a small population, even with only one migrant each generation (Lacy 1987). The movement of individual Blue Ducks across the main divide may be very important for the conservation of the species over its present range in the Arthur's Pass area.

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A vagrant Laughing Gull (*Larus atricilla*) from Pitcairn Island: A new record for southern and eastern Polynesia

During mid-March 1992, I discovered the remains of a Laughing Gull (*Larus atricilla*) at Down Rope Beach, Pitcairn Island. It appeared to have been dead for approximately one month. The distance from Pitcairn Island to the wintering grounds of this North American gull is over 5,000 km (Figure 1) and the nearest vagrancy record to Pitcairn Island is Samoa (4,000 km away). It was probably displaced to the south west by the cyclone strength winds associated with the 1991/92 El Niño. This gull's skeleton (which I used for species identification) is now deposited at the Museum of New Zealand, Wellington (#24650).

Laughing Gulls commonly occur long distances from their breeding and wintering grounds and have been recorded almost annually in Europe, Hawaii and the Line Islands (Harrison 1983, King 1967) and have also been recorded in the west Pacific at:

- Upolu Island, Western Samoa, January and February 1980, 1 imm. (Muse *et al.* 1980).
- Bikini Atoll, Marshall Islands, May 1986, 1 ad. (Garrett 1987).
- Cairns, Queensland, December 1987, 1 ad. and 1 imm. (Fisher & Fisher 1988).
- Eastern Australia, 1988, 1989, 1990 etc. occasional records.

This medium-sized gull is a likely vagrant to other south Pacific Islands, including New Zealand and can be identified by a combination of: dark grey upper wings and back; entirely black outer primaries; longated silhouette while in flight; white crescents above and below eye; conspicuous black head in breeding plumage; long drooping dark bill with an orange tip and long wings extending well beyond its tail feathers while at rest.

This record of a vagrant gull reinforces recent fossil bird research on Henderson Island, Pitcairn Group (Wragg, in press), where vagrants make up approximately 20% of the fossil bird list, but only account for 0.04%