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### Observations of fruit eating by Blue Duck

Literature describing the diet of the Blue Duck (*Hymenolaimus malacorhynchos*) lists invertebrates as the main foods. Although faeces with moss and algae (Kear & Burton 1971) and "small brown seeds" (Fordyce 1974) have been recorded, everyone has assumed that the ingestion of plant matter is incidental to the Blue Ducks' feeding on invertebrates.

In this note I describe observations of fruit eating by Blue Ducks and try to quantify the most important of them.

On 4 April 1989, while banding Blue Ducks in the Mingha Valley, Arthur's Pass National Park, Colin O'Donnell, Peter Dilks and I noted abundant seed in Blue Duck faeces. Later that day, while we were banding a pair of adult Blue Ducks, the female passed faeces almost entirely composed of *Coprosma rugosa*\* seeds. On 5 April, we watched an adult Blue Duck gobbling ripe *Coprosma depressa* fruit from plants sprawling down a damp bank at the edge of Agility Creek, a small tributary of the Mingha River. This feeding activity lasted almost 5 minutes and was followed by brief pecking of seed from a nearby tussock (*Chionochloa conspicua*).

While travelling up the Mingha River on 5-6 April, we tried to quantify this feeding behaviour by counting all Blue Duck droppings seen, recording the number that contained seed, and counting the number of seeds in each dropping. All droppings were less than 1 week old, having been deposited since the last heavy rain (c. 200 mm on 28-29 March), and were from 2-3 pairs of Blue Ducks.

Three habitat zones were sampled:

1. **Alpine** (960-1150 m asl). Small, fast flowing and gorged, the river travels through open tussock grassland and herbfield with subalpine shrubs in sheltered places.

\*Nomenclature follows Allan 1961

TABLE 1 — Distribution per 100 m of droppings, and of droppings with seed, in the Mingha River

Habitat Zone (see text)	River Length (m)	No. of Droppings	Droppings per 100m	No. of Droppings with Seed	No. with Seed per 100m	Percent with Seed	Total No. of Seed Present	Average No. of Seed per Sample
Alpine	930	38	3.7	4	0.4	11.7	10	2.5
Sub-alpine	1860	195	10.5	133	7.2	68.2	7376	55.5
Montane	870	27	3.1	8	0.9	29.6	158	19.7
Totals	3660	260	7.1	145	4.0	55.8	7544	52.0

- Subalpine** (850–960 m asl). Larger and gentler, the river flows over a wider and more open gravel bed surrounded by thick subalpine vegetation. This woody vegetation is dominated by shrubs, including *Coprosma rugosa*, *Phyllocladus alpinus*, *Dracophyllum* spp., *Hebe subalpina*, *Hoheria glabrata*, *Aristotelia fruticosa*, *Senecio* spp., *Olearia* spp., and *Phormium cookianum*. The open gravels support mat or prostrate plants including *Muehlenbeckia axillaris*, *Raoulia* spp. and *Coriaria* spp.
- Montane** (810–850 m asl). Gentler, but confined between rocky banks, the river passes through mountain beech (*Nothofagus solandri* var *cliffortioides*) forest. Riparian species include *Coprosma depressa*, *Chionochloa conspicua*, *Olearia* spp., and herbs.

We found 260 droppings in 3.6 km of the main Mingha River, of which 145 (55.8%) contained seed. We recorded 7544 seeds, with individual droppings containing 1–610 seeds (average 52 seeds per dropping) (Table 1). Most seeds were from *Coprosma rugosa* fruits, but others were from *Coprosma depressa*, *Phyllocladus alpinus*, *Muehlenbeckia axillaris*, and an unidentified species.

In the alpine reaches of the river, where subalpine shrubs give way to tussock grassland/herbfield, only 11.7% of droppings contained seed (Figure 1). In the subalpine zone, where *Coprosma rugosa* is a dominant riparian shrub, 68.2% of droppings contained seed. Below the timberline (montane zone), where *Coprosma depressa* is common, 29.6% of droppings contained seed.

I have also seen seeds of *Coprosma rugosa* in Blue Duck droppings in Pegleg Creek, a tributary of the Otira River (Arthur's Pass National Park), on 21 June 1988 and in the upper Otira River on 29 April 1989 (187 seeds in 14 droppings out of 32 droppings seen). I have also seen an adult Blue Duck pecking seed clusters from a rush, *Luzula crinita*, in the upper Otira Valley, on 30 January 1988.

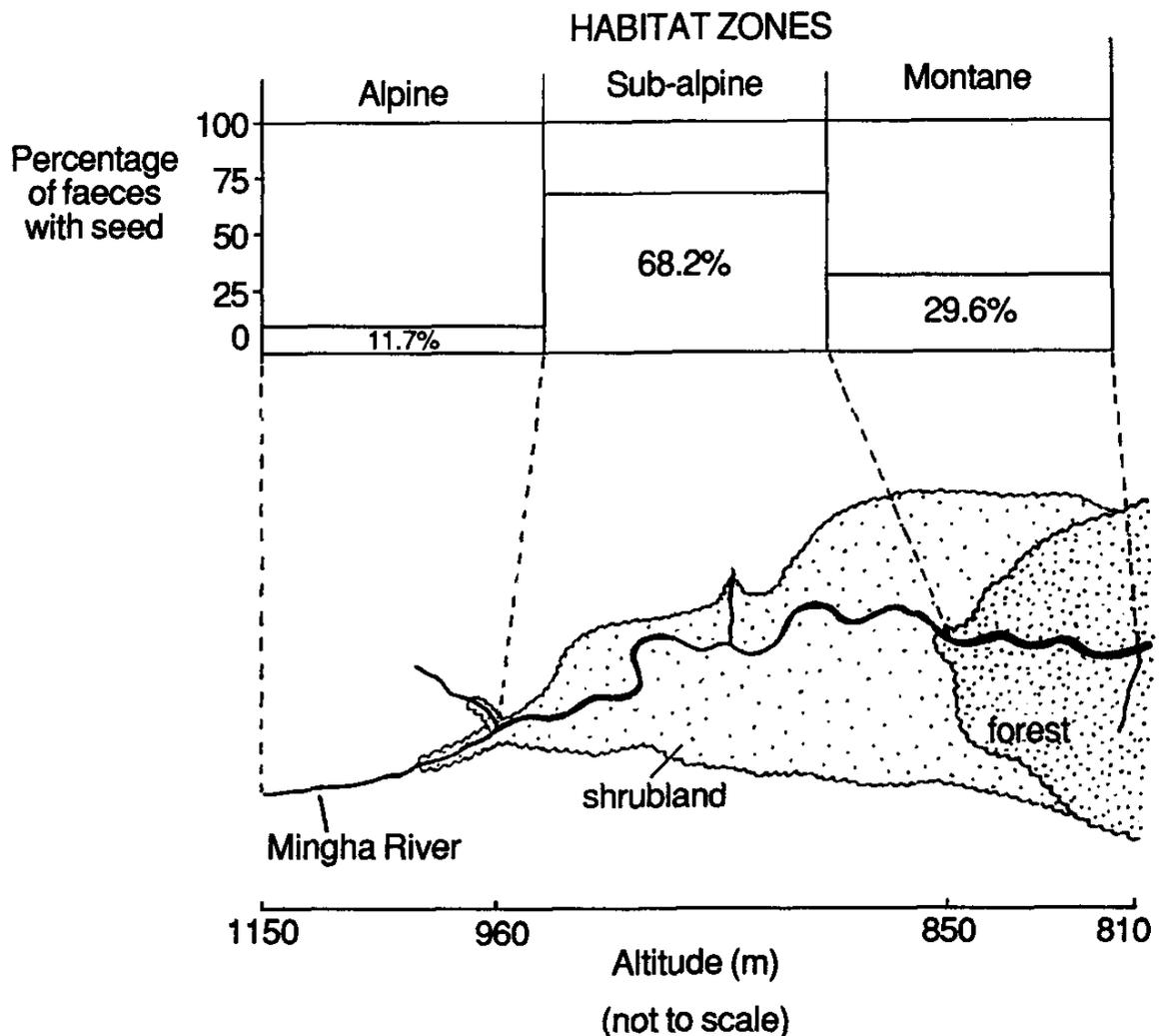


FIGURE 1 — Percentage of faeces with seed in each habitat zone

These observations suggest that Blue Ducks readily eat fruit from riparian vegetation, particularly *Coprosma rugosa*, when available, and that fruit may be important in the autumn diet of the Blue Ducks in the Mingha and Otira Valleys.

Blue Ducks in the Arthur's Pass area seem, in my experience, to be most common at or above the timberline, where subalpine shrubs such as *Coprosma rugosa* dominate the vegetation. Further investigation is needed into the relative importance of fruit and invertebrates in the Blue Duck diet.

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