

## SHORT NOTE

### Weights, measurements and autumn foods of free-ranging turkeys in New Zealand

Published information on turkeys (*Meleagris gallopavo*) outside the United States is meagre. The exact origin of the New Zealand turkey is uncertain. The birds may have been brought by the British from England. According to Oliver (1955) the New Zealand race of turkeys was derived from *M. g. mexicana*. Falla *et al.* (1966) mentioned that turkeys were introduced in New Zealand before 1890. Long (1925) listed 1892 as the earliest date of introduction. Thomson (1922) noted that turkeys were common in Hawke's Bay c. 1894. Soper (1984) commented "As with the Guinea fowl, domestic escapes occurred in New Zealand from the earliest days of settlement." Oliver (1955) reported turkeys to be permanently established in various localities in Wellington, Hawke's Bay and Marlborough provinces. Oliver commented that turkeys had disappeared from some localities due to the loss of insects caused by Starlings (*Sturnus vulgaris*). The 1990 New Zealand checklist said that turkeys are "established in the wild in rough farmland in many North Island and a few South Island localities." Bull *et al.* (1985) showed 54 turkey location sites throughout the North Island and five in the South Island.

I measured 61 turkeys shot in early June 1987 and 42 shot in early November 1987 by hunters about 12 km north of Taupo, North Island. I removed the crop contents of 45 turkeys, segregated the food, identified it, and measured its volume by water displacement (Korschgen 1980).

As original data sets were not available from the literature as reference for other subspecies, I made statistical evaluations using non-overlapping confidence intervals calculated from the New Zealand data relative to published means for other subspecies. Experiment wise error (the probability of a Type I error over all comparisons) was  $P \leq 0.03$  and degrees of freedom were based on the New Zealand sample.

Age was determined by tail configuration, spur development and outer primary shape and coloration as described by Larson & Taber (1980:190-191).

#### Physical characteristics

The overall external appearance of the turkeys I examined suggested many similarities to the domestic turkeys from which they were derived with widely variable plumage coloration and a short, thick-legged and stocky overall appearance. Leopold (1944) described domestic turkeys as rounder and more plump than wild turkeys.

Although initially unwary the birds became wild after being hunted. When flushed they flew strongly, with some seen to fly up to 0.40 km (Howard & Schemnitz 1988).

#### Weights

Adult male New Zealand turkeys were of equal weight to or heavier than the subspecies of wild turkeys in North America (Table 1). Leopold (1944) also found domestic male turkeys to be heavier than wild turkeys. The largest New Zealand male turkey collected in June weighed 8.2 kg. The largest male turkey from the November sample weighed 10.6 kg (Table 1).

TABLE 1 — Weights of North American wild turkeys and New Zealand turkeys by

Age and Sex	Subspecies*	Sample size	Average weight (kg)	Range
<b>Adult Male</b>	Eastern	125	8.1	--
	Merriam's	65	8.3	--
	Rio Grande	226	7.5	--
	New Zealand	56	8.3	5.2-10.6
<b>Juvenile Male</b>	Eastern	167	4.4	--
	Merriam's	128	5.5	--
	Rio Grande	197	5.9	--
	New Zealand	16	4.9	2.7-6.3
<b>Adult Female</b>	Eastern	82	4.5	--
	Merriam's	43	4.7	--
	Rio Grande	427	3.9	--
	New Zealand	10	3.9	3.2-5.2
<b>Juvenile Female</b>	Eastern	72	4.0	--
	Merriam's	88	3.9	--
	Rio Grande	310	3.4	--
	New Zealand	23	2.9	1.6-4.1

\*from Lewis (1967)

The average weight of 11 adult males in the May sample was 6.6 kg  $\pm$  0.94 SD (range 5.2 - 8.2 kg). The average weight of the 5 adult males in the November sample was 8.76 kg  $\pm$  0.93 SD (range 6.0 - 10.6 kg). Most females were lighter than female North American wild turkeys (Table 1).

### Beards and other measurements

Average beard length (146 mm, range 4-229, n = 56) of New Zealand adult gobblers was significantly less ( $P < 0.03$ ) than beard lengths of the eastern subspecies of North American wild turkeys (Leopold 1944, Baldwin 1947, McDowell 1954, Lewis 1967). Multiple beards were noted with 2 beards found on 9 males (17%) and 3 beards present in 2 (3.8%) of the 56 adult males. Schorger (1966) commented that "double beards are fairly common", but no comparable quantitative information is available.

Average spur (15 mm, range 5.0 - 27.8, n = 56) and tarsal lengths (126.9 mm, range 97-191, n = 56) were significantly smaller ( $P < 0.03$ ) than those of wild turkeys (Aldrich 1967), but tail lengths were intermediate (Table 2).

### Foods

Herbaceous food predominated in the diet with clover (48%) and ryegrass (49.5%) being present in nearly equal amounts (Table 3). Green herbaceous food is also an important component of the diet of North American wild turkeys. Other major autumn foods in the United States include mast (oak, beech, pine), fruits of shrubs, and grass and forb seeds (Korschgen 1967).

TABLE 2 — Tail length of North American adult male wild turkeys (Aldrich 1967) and New Zealand turkeys

	Sample size	Average tail length (mm)	Range in tail length
Gould's	9	402.8	370-437
Merriam's	11	400.1	375-427
Rio Grande	25	339.0	300-385
Eastern	21	381.0	345-440
New Zealand	61	343.0	245-505

TABLE 3 — Summary of early autumn foods based on crop analysis of 45 turkeys in New Zealand, North Island, near Lake Taupo, June 1987

Food Eaten	Frequency of Occurrence	Volume cc.	% Volume
Perennial ryegrass ( <i>Lolium</i> sp.)	45	1847.05	49.5
Clover ( <i>Trifolium</i> sp.)	43	1792.5	48.0
Grit	21	65.0	1.7
Stinging nettle ( <i>Urtica</i> sp.)	5	15.0	.4
Dandelion ( <i>Taraxacum officinale</i> )	3	15.0	.4
Cricket	2	T*	--
Grasshopper	1	T	--
		Total	100.0%

— \*T = trace or less than 0.1 cc.

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### An early record of probable Snares Cape Pigeon off southwestern Australia

In 1913 Gregory Mathews described his New Zealand Spotted Petrel as *Daption capense australis* subsp.n. on the basis of a specimen in his own collection said to be from New Zealand, and he gave its range as Australia and New Zealand. He said that it differed from *D.c.capense* in having the dark markings very much darker, almost black, and that the measurements were about the same (Mathews 1913:187). Most of Mathews' supposedly new subspecific Procellariid determinations have not withstood the test of time. However, his *australis* is still accepted (as *australe*) for the darker and slightly smaller Snares Cape Pigeon known to breed only at The Snares and certain other islands south and east of New Zealand. Identification of Snares Cape Pigeons at sea away from the breeding grounds is difficult, but Bartle (1974:147) identified all Cape Pigeons he saw in the Cook Strait area in autumn as *australe* and Robertson & Jenkins (1981:19) similarly identified all those they saw in eastern and southern New Zealand waters between February and June. Bartle (1974:147) claimed that adults of the nominate race always have a much whiter back than *australe* despite varying effects of plumage wear. Biometrics do not show significant differences between the subspecies (Marchant & Higgins 1990:400), but *australe* is slightly smaller (Sagar 1986:261).

Away from its breeding grounds *australe* has been recorded off southern Australia, in the Ross Sea and round New Zealand (Marchant & Higgins 1990:394). There is also a previously unpublished observation from 1791