

# AN ASSESSMENT OF THE NUMBER OF TAKAHE IN THE 'SPECIAL AREA' OF THE MURCHISON MOUNTAINS DURING THE YEARS 1963 - 1967

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## ABSTRACT

Details are given of the following evidence leading to an assessment of the number of Takahe in the "Special Area," a region of 518 sq. km in the Murchison Mountains: the number of known Takahe "territories" in the various localities or areas of the Murchison Mountains from 1948 to 1971 inclusive; observations made by different organizations in the "Special Area" (excluding the Takahe Valley - Point Burn Study Area) since 1948; the substance of the observations on which the population estimate is based; details of field observations and estimates of total number of territories and total adult population in the "Special Area" during the 1960s.

The total population of Takahe is estimated to number about 435-510 with a possible maximum in excess of 560 birds.

Dr G. B. Orbell rediscovered Takahe in the Tunnel Burn (= Takahe Valley) in November 1948 and within three months T. S. Howes reported evidence of this species in Waterfall Creek and the Chester Burn. During 1950 F. Woodrow found birds, or their sign, in Lake Creek, the Mystery Burn and along the Point Burn tops. The following year Woodrow recorded Takahe in the McKenzie Burn, Snag Burn and Sheerwall Creek, and confirmed his Mystery Burn and Lake Creek sightings, while V. Kappley and P. W. Maurice found evidence of Takahe in the Junction, Jennings and Woodrow Burns. By the end of 1962 the exploration by Woodrow and others showed Takahe were also present in Falls and Lyall Creeks as well as along the southern slopes of the Ettrick Burn (Fig. 2).

A Canterbury Museum expedition (Wisely 1956) which mapped the western Murchisons during February and March 1953 confirmed several previous reports and also recorded Takahe in the Esk Burn and in the Irene Watershed west of the main divide.

Members of the New Zealand Deerstalkers Association hunting in the northern sector of the 'Special Area,' a 518 sq. km region of the Murchison Mountains (cf. Fig. 5), between 1959 and 1965 located 19 previously unknown pairs and confirmed several earlier sightings.

During 1958 Wildlife Service officers (Miers 1958) traversed the eastern watersheds from the Snag to the Mystery Burn. This party discovered 13-17 new territories and confirmed the presence of a further 6-10 pairs.

From 1959 to 1962 inclusive W. H. Axeby and other Wildlife officers, while engaged on deer control in the SE part of the Murchisons, located a total of 31 territories including 12 that had not been recorded earlier.

In 1960 G. B. Orbell reported five pairs in the Snag Burn and two years later he found a further four pairs in the Snag/Miller Peaks area.

Deer control in the Murchison Mountains passed to the Forest Service in late 1962 and within their first 10 years of operations Forestry hunters, besides killing 9,281 deer, also furnished 335 reports on sightings of Takahe or presence of sign. Two shooters made an outstanding contribution: from late 1964 to early 1968 C. R. Deaker provided 153 reports including 48 sightings of pairs that had not been recorded previously and R. Dawson made 67 separate observations between late 1967 and early 1969. These records either provided a comprehensive background, or alternatively complemented or corroborated the findings of Reid, Stack and M. Evans (Forest Service) during their surveys of the western Murchisons in 1966 and eastern Murchisons the following year.

During the summer of 1969-1970 field parties from the Forest and Range Experimental Station (Forest Service) reported Takahe from 21 areas including one small valley that had not been visited previously.

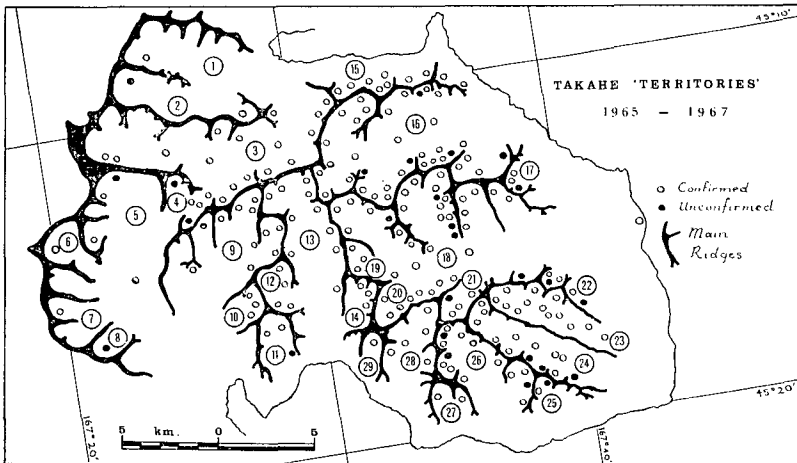


FIGURE 1 — The distribution of known territories in the Murchison Mountains, west of Lake Te Anau (1965-1967). The size of each territory, or more precisely, the space available to each pair during the nesting season varies from 2.5 to more than 80 ha, and averages 30-35 ha.

Table 1

THE NUMBER OF KNOWN TAKAHE 'TERRITORIES' IN THE VARIOUS LOCALITIES  
OR AREAS OF THE MURCHISON MOUNTAINS - FROM 1948 TO 1971 INCLUSIVE

Locality	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
1 Junction Burn	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2 Jennings Burn	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
3 Woodrow Burn	-	-	-	1	1	3	3	4	4	4	4	5	5	7	8	9	9	12	14	15	16	17	17	17
4 Lake Wisely	-	-	-	-	-	-	-	-	-	-	-	-	3	4	4	4	4	4	4	4	4	4	4	4
5 Esk Burn	-	-	-	-	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4
6 Forster Burn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1
7 Adams Burn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1
8 Philipson Burn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1
9 McKenzie Burn	-	-	-	2	2	3	3	3	3	3	3	3	3	3	4	5	5	6	8	9	9	10	11	11
10	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3
11 Waterfall Creek	-	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
12 Lake Eyles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	4	4	4
13 Chester Burn	-	1	1	1	1	3	3	4	4	4	4	4	5	5	6	6	7	7	8	9	9	10	10	10
14 Falls Creek	-	-	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3
15 Mid Fiord Faces	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	2	4	6	6	9	9	10	10	10
16 Snag Burn	-	-	-	2	2	4	4	4	4	4	6	6	6	8	9	12	20	24	25	33	33	34	34	34
17	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	1	3	3	3	3	3
18 Ettrick Burn	-	-	-	-	2	6	7	7	7	7	13	13	13	15	16	16	17	22	24	33	33	33	35	35
19 Plateau Creek	-	-	-	-	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3
20 Lyall Creek	-	-	-	-	1	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3
21 Lake Creek	-	-	1	2	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4
22 Ettrick Faces	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	2	6	6	6	6	6
23 Takahe V. (Study)	3	5	7	8	9	9	10	11	11	11	11	11	11	12	12	12	13	13	13	13	13	13	13	13
24 Point B. (Area)	-	2	2	2	3	3	3	4	4	5	6	6	6	6	6	7	7	7	7	7	7	7	7	7
24 Point Burn Tops	-	-	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	4	4	6	6	6	6	6
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2	2	2	2	2
26 Mystery Burn	-	-	1	3	3	3	3	5	5	5	8	8	8	9	9	9	10	10	12	14	14	14	14	14
27 Sheerwall Creek	-	-	-	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28 Williams Burn	-	-	-	-	-	-	-	-	-	-	-	-	1	2	3	3	3	4	4	4	5	5	5	5
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1
Territories Found <sup>a</sup>	3	6	7	13	8	13	2	6	0	1	17	1	5	13	8	8	15	22	18	34	3	6	4	0
Total Known <sup>a</sup>	3	9	16	29	37	50	52	58	58	59	76	77	82	95	103	111	126	148	166	200	203	209	213	213
New Territories <sup>b</sup>	0	2	5	12	6	13	1	4	0	0	16	1	5	12	8	7	14	22	18	34	3	6	4	0
Number of Reports <sup>b</sup>	0	2	9	29	9	32	2	5	0	0	25	5	13	26	30	16	22	73	79	124	74	87	73	7

a. Including the 'Study Area' (Takahe Valley, Point Burn). b. Excluding the 'Study Area'.

Table 1 shows the number of known Takahe territories in the 'Special Area' between 1948 and 1971 (cf. also Fig. 1). Early records were mainly couched in vague terms. While they indicated that a certain number of territories had been found within different watersheds, in most cases it was not possible to identify these early finds with more recent records because lack of detail on early maps prevented the accurate pinpointing of sightings. The routine plotting of territory sites or bird sightings on maps was started by Deaker in 1964 and from that year on it has generally been possible to identify each report as either a new record or a confirmation of an earlier find.

Observations made from 1964 onwards are assumed to include repeat sightings of all observations made before that year. As an example: ten different pairs have been located and subsequently confirmed in the Chester Burn since 1964 and the 13 separate records of Takahe in that valley prior to 1964 are assumed to be earlier sightings of these 10 territories. It is, however, highly probable that some of these early sightings may be of pairs in areas of the Chester Burn that have not been searched since the mapping of territory positions started as we estimate that only 70-80% of the Chester Burn tops and upper valleys have been traversed and searched since 1964.



FIGURE 2 — The Ettrick faces during August. Winter snow frequently drives the birds from the tussock tops down into the forests.

Likewise, any reports subsequent to 1964 that are ambiguous in that they could be either a new find or a confirmation of a known territory are assumed to be the latter. Consequently, while there is always the chance that a territory has been counted twice, the likelihood of two neighbouring pairs being assessed as a single territory is far greater and the estimate of 213 known territories would, most likely, err on the conservative side.



FIGURE 3 — Lake Eyles. This lake is approximately 1050 m above sea level and this basin contains four pairs of Takahe.

Table 2 summarizes the observations made by different organisations in the 'Special Area' (excluding the Takahe Valley - Point Burn Study Area) since 1948. It understates the contribution of Forest Service shooters who, in fact, recorded the presence of 144 different territories between 1964 and 1970. Thirty-six of their records confirm sightings made by Wildlife officers during 1966 and 1967 and a further 50 of their records are assumed to duplicate sightings made prior to 1964. The Wildlife Service Surveys of 1966 and 1967 located 142 different territories (Fig. 1). These include 66 that had been reported

Table 2. OBSERVATIONS OF BIRDS AND TERRITORIES

	New Territories First Reported	Confirmed Previously Reported Territories	Total Number of Observations
Canterbury Museum	8	5	13
N.Z. Deerstalkers Ass.	19	32	51
Forest Service Hunters	58	276	334
F. & R. Exptal. Station	1	20	21
Wildlife Service	97	207	304
Miscellaneous	10	9	19
	193	549	742

previously by Forest Service shooters and 10 that remain unconfirmed as only sign was found during the Surveys and the areas have not been rechecked.

The substance of the observations upon which the population estimate is based is given in Table 3. Of the 742 separate reports, 64.4% were of birds, 29.5% were of 'sign' (droppings, cut grass, feathers, etc.) and 6.1% did not give details, only that Takahe were present.

Table 3. SUBSTANCE OF TERRITORY OBSERVATIONS

	Number of Reports		Number of Reports
'Sign' only	219	4 Birds Seen	3
1 Bird Seen	123	Chicks also seen	55
2 Birds Seen	245	Breeding nests seen	15
3 Birds Seen	37	Not specified	45
Total Number of Reports .....			742

Table 4 gives the details of field observations and also the estimates of the total number of territories and the total adult population (aged one year or older) in the the 'Special Area' during the nineteen-sixties (cf. Fig. 4). Birds have not been seen on 28 of the 213 reported territories and these are classed as unconfirmed although the abundance and freshness of sign indicated that most were occupied at the time.

Shooters in search of deer have ranged extensively over the Murchison Mountains but the routes taken are usually those that provide quickest access to favoured hunting grounds and often exclude areas providing suitable habitat for Takahe. Several such areas that are removed from the usual access paths were visited during the Wildlife Service surveys and 76 territories were found which were unknown to the shooters who have subsequently confirmed many of these records. Considerable areas, however, have not been searched or even traversed and we have no data on the Takahe population in several areas which, in total, represent about 20-30% of the tussock lands and alpine meadows of the 'Special Area.' Our estimate of the total population (Table 4) includes an allowance for these unexplored areas and we consider that there probably were between 212-243, and possibly as many as 270 occupied territories in the mid 1960s. As there are 2.1 adults birds per territory in an average year (Reid 1971) the total population is estimated to number about 435-510, with a possible maximum in excess of 560 birds.

Table 4

THE ESTIMATED TAKAHE POPULATION LIVING WITHIN THE  
518 SQ. KM 'SPECIAL AREA' OF THE MURCHISON MOUNTAINS  
DURING THE MID 1960s (I.E. 1963 - 1967)

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Area	Territories Reported			% of Area Searched	Est. Total		Territories Maximum	Est. No. Adult Birds	
	Confirmed	Unconfirmed	Total		Probable			Probable	Maximum
1 Junction Burn	1	0	1	40- 50	1- 2	3	3- 4	5	
2 Jennings Burn	1	1	2	40- 50	2- 3	4	4- 5	6	
3 Woodrow Burn	16	1	17	70- 80	18- 20	22	37- 42	46	
4 Lake Wisely	2	2	4	90-100	3- 4	4	6- 7	8	
5 Esk Burn	3	1	4	60- 70	3- 5	6	6- 9	13	
6 Forster Burn	1	0	1	60- 70	1- 2	2	2- 3	4	
7 Adams Burn	1	0	1	60- 70	1- 2	2	2- 3	4	
8 Philipson Burn	0	1	1	50- 60	1- 1	1	2- 2	3	
9 McKenzie Burn	10	1	11	70- 80	11- 13	15	23- 27	30	
10	3	0	3	70- 80	3- 4	4	6- 9	9	
11 Waterfall Creek	2	1	3	80- 90	2- 3	4	4- 7	8	
12 Lake Eyles	4	0	4	90-100	4- 4	4	8- 9	9	
13 Chester Burn	10	0	10	70- 80	11- 12	14	23- 26	29	
14 Falls Creek	3	0	3	80- 90	3- 4	4	6- 9	9	
15 Mid Fiord Faces	10	0	10	70- 80	11- 12	14	23- 26	29	
16 Snag Burn	30	4	34	70- 80	35- 40	43	72- 84	90	
17	2	1	3	90-100	2- 3	3	4- 7	7	
18 Ettrick Burn	31	4	35	70- 80	36- 40	45	75- 84	93	
19 Plateau Creek	3	0	3	90-100	3- 3	4	6- 7	9	
20 Lyall Creek	3	0	3	80- 90	3- 3	4	6- 7	9	
21 Lake Creek	3	1	4	80- 90	4- 4	5	8- 9	11	
22 Ettrick Faces	3	3	6	80- 90	6- 7	7	12- 13	16	
23 Takahe Valley	13	0	13	90-100	13- 13	13	27- 27	27	
24 Point Burn	10	3	13	80- 90	13- 14	15	27- 29	31	
25	1	1	2	60- 70	1- 2	3	2- 4	5	
26 Mystery Burn	11	3	14	70- 80	13- 14	16	27- 29	33	
27 Sheerwall Creek	2	0	2	50- 60	2- 2	2	4- 5	5	
28 Williams Burn	5	0	5	60- 70	5- 6	8	10- 13	16	
29	1	0	1	80- 90	1- 1	1	2- 2	3	
	185	28	213	70- 80	212-243	272	437-508	567	

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FIGURE 4 — The Woodrow Burn; a valley system which held between 17 and 20 pairs of birds during the mid 1960s.





FIGURE 5 — Mt Irene which delimits the western boundary of the "Special Area."

#### ACKNOWLEDGEMENTS

The following have at various times roamed the Murchison Mountains, either alone or as members of parties, and reported the presence of Takahe —

G. Anderson (1961, 70); J. A. Anderson (1959); W. H. Axbey (1959, 60, 61, 62); M. Barnett (1969); R. Beech (1968); L. Bell (1951, 52); W. Bloxham (1951, 52); E. Brunton (1969); P. K. Dorizac (1951, 52, 53, 61); J. R. Drew (1967); R. Duff (1951); R. Dawson (1967, 68, 69); C. R. Deaker (1964, 65, 66, 67, 68); M. Evans (1966, 67, 68, 70); N. Ewing (1960); J. R. Eyles (1953); J. Fleming (1965, 66); M. Harrison (1967, 70); J. Hayward (1969); T. Hazeldine (1967); H. J. Henwood (1961, 62, 65); J. Herbert (1969); I. Hogarth (1959, 1960); T. S. Howes (1949); A. Hunter (1967, 1970); R. T. Hutchison (1964); R. Jansen (1968, 1969); B. Kappley (1951); R. Kirk (1968); R. B. Lavers (1967, 1970); C. E. McIvor (1951); A. A. McMaster (1953); M. Mason (1969, 70, 71); P. W. Maurice (1951); D. Merton (1959); K. H. Miers (1950, 1958); B. Milroy (1967); L. Moran (1970); K. J. Morgan (1951, 52); P. Morrison (1958); F. L. Newcombe (1951, 58); J. O'Brien (1962, 66); G. B. Orbell (1960, 62); W. R. Philipson (1953); K. L. Purdon (1953); D. M. Reeves (1962, 63); B. Reid (1966, 67); C. D. Roderick (1961); L. Russell (1963); J. Scott (1969); E. J. Sharp (1966); M. M. Small (1959); D. J. Stack (1964, 65, 66, 67); R. V. Francis-Smith (1953); H. R. Tanfield (1962, 64, 66); K. Tustin (1969); R. Veitch (1962); C. Watson (1966); D. Wilson (1969); B. Wisely (1950, 51, 53); F. Woodrow (1950, 51, 52) — and we thank them all.

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## SHORT NOTE

## ROCK WREN USING AN ANVIL

Since interest in the subject of birds as tool-users is now world-wide, the following incident seems relevant and may be worth recounting.

On 14 January 1970 when my wife and I spent some time watching Rock Wrens (*Xenicus gilviventris*) not far from the Homer Tunnel, one was seen to catch a rather big bright-green grasshopper and to batter the body to pulp on a piece of corrugated iron, a relic perhaps from the building of the tunnel and swept away by an avalanche. For so small a bird a grasshopper of this size seemed a rather unwieldy morsel. But both Guthrie-Smith (1936: 146) and Soper (1972: 19) mention grasshoppers among the items of prey taken by Rock Wrens; and it seems that in summer these insects form a normal part of their diet. This being so, to render grasshoppers edible, Rock Wrens must be in the habit of 'softening them up' on a handy 'anvil' in much the same way as the Song Thrush (*Turdus philomelos*) smashes snails on a stone.

As to the identity of the grasshopper, I consulted Dr R. R. Forster of the Otago Museum and Mr J. S. Dugdale of the Entomology Division, DSIR, and I am grateful for their helpful interest. Both suggest that the grasshopper was either *Sigauss australis* or *Alpinacris tumidicauda*, with the balance of the rather inadequate data favouring the former.

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