TRANSFER OF SADDLEBACKS FROM HEN ISLAND TO MIDDLE CHICKEN ISLAND JANUARY, 1964

By D. V. MERTON, Wildlife Branch, Dept. Internal Affairs

INTRODUCTION

The fourth attempt by the Internal Affairs Department since 1925 to establish a second island population of North Island Saddleback *(Philesturnus carunculatus rufusater)*, now confined in range to Hen (Taranga) Island, took place over a four week period in January and early February 1964. The project was organised and led by the writer, who was asisted officially by D. J. Campbell. R. Walker, Wildlife Branch, was present for the first week and a team of Ornithological Society and King's College Bird Club members also helped in a voluntary capacity. They were:—

7-14/1/64 — R. H. Sibson, L. C. Shailer. 7-18/1/64 — J. L. Kendrick, J. Kerr, M. G. MacDonald. 14-18/1/64 — A. & G. Baskett, J. Ewen. 7-24/1/64 — D. R. Ellis. 14/24/1/64 — G. J. H. Moon, D. M. Walter. 14-20/1/64 — N. J. Ledgard. 23-29/1/64 — G. Hogg. 23/1-4/2/64 — M. J. Hogg and P. D. G. Skegg,

without whose willing co-operation, this expedition could not have achieved the success that it did.

The project was made possible by the Navy Department's making available its Fleet Auxiliary "Arataki" to transport both personnel and birds.

As a result of prior investigations by the Wildlife Branch, Department of Internal Affairs, in consultation with the Fauna Protection Advisory Council, it was decided to transfer Saddlebacks from Hen (Taranga) Island and release them on Middle Chicken (Whakahau) Island (168 acres), four and a half miles to the north. Middle Chicken Island was suggested as a more suitable habitat than Big Chicken (Marotiri) Island by R. B. Sibson, following the unsuccessful attempts to establish Saddlebacks on the latter island (Bell 1949 and 1950, Department of Internal Affairs file 46/62/19).

Permission to carry out this transfer of protected native birds and within a scenic reserve was obtained from the Minister of Internal Affairs and Director General of Lands respectively. Authority was also granted for Saddlebacks to be retained at Mount Bruce Native Bird Reserve, in the Wairarapa district.

Weather conditions throughout the stay were good; but, on several days, a light wind interfered with mist-netting. No rain of any consequence fell; in fact, the period coincided with a severe drought throughout Northland.

METHODS OF CAPTURE

The first few days ashore were spent in building cages, carrying boxes, various types of traps and obtaining tape recordings of calls. This accomplished, catching was started, using eight standard untethered mist-nets of various lengths set at random, as well as various types of drop traps, none of which proved successful. Little success was had at first, when attempts were made to lure birds into mist-nets by means of tape recordings. The few birds caught were all males. (In adult birds, sex could usually be determined by caruncle size, males having larger and more pendulous caruncles than females. Other minor differences in both form and behaviour, recorded by Blackburn (1964), were apparent.)

Later, however, when this technique had been perfected, it was most productive. J. L. Kendrick's considerable technical knowledge and experience of sound equipment proved invaluable in developing this method of capture.

The first bird, an adult male, was caught in a mist-net in Pukanui Bay on 9/1/64. It was placed in a cage, where it lived for only two days. During this time, it fed on insects, but did not settle down and probably died of exhaustion and shock, as a result of being alone and so confined. The skin of this bird was preserved in the form of a decoy, which subsequently proved to be invaluable for luring birds into mist-nets.

Following the death of this bird, a 10 x 4 x 4 feet aviary was built and furnished with litter and foliage. This aviary served to hold all subsequent birds caught, without further loss.

The method which proved most successful is as follows:—

A portable transistorised tape recorder was carried through the forest and a "territory call" replayed at high volume at intervals. Before long, the male of a pair would answer this challenge and rush to the scene, followed by his mate. Most pairs were obviously defending territories, particularly those with dependent young. Occasionally, however, a pair would be encountered which showed no more than a pasing interest in the recording. Such pairs were difficult to catch and wasted much time. They were therefore avoided.

Having located a pair actively defending their territory, a suitable site was then decided upon in which to suspend a 20ft or 30ft. mist-net, a favourite position being horizontal to a steep shady slope. Often, branches and foliage had to be removed or tied back in order to make a clear line for the net. In tall bush, two nets were used, one above the other, the ties being attached to an endless rope belt over an upper canopy branch and under a root or log on the ground. In this manner, a net could be hoisted quite simply to the upper canopy of the tallest forest trees.

It was soon found that Saddlebacks, because of their comparatively weak flight and quick reflexes, were difficult to catch in a mist-net by normal methods, so certain modifications had to be made. The tiers of the mist-net were brought closer together, so that a three tier, 9 feet deep net when set for Saddlebacks would be only 6 feet deep. The "pockets" in the net were thereby deepened considerably, so making it more difficult for captured birds to escape. The ties were kept tight lengthwise, so that there was no sag in the centre of the net with resultant bagging.

Having set the net, the mounted Saddleback decoy was placed on a perch 2 to 3 feet from the net on the up-hill side and about level with the middle of the lower net. The tape recorder's remote speaker was set up near the mounted bird and the machine itself taken some 25 feet away further up-hill. A fine string was then attached to the branch to which the decoy was fastened and run back near the tape-recorder. If suitable perches were not available on both sides of the centre of the net, these had to be provided. When all was ready, assistants would sit quietly 30 feet or so from the nets, while the operator at the tape-recorder set this machine going. It was found that individual territory calls played at high volume at intervals were adequate to bring most birds to the netting areas. If this failed, a recording of Saddlebacks and other birds scolding a Morepork was very effective and occasionally brought pairs from neighbouring territories as well. A live Morepork tethered beneath the net proved an even more succesful attraction.

Once the birds were attracted to the general area, the tape recorder's volume was lowered considerably and the decoy gently moved by means of the fine string attached to its perch. As the birds came closer, various calls were played and the volume decreased even more, so that when a bird was close at hand, the sound was just audible to the operator. The gentle rocking of the decoy was continued throughout.

Attracted Saddlebacks would generally approach rapidly from above, often high in the canopy, the male invariably leading. In reply to the recordings, he would give voice to a number of bold territory and threat calls. At about 20 feet distance, he would bow and display to the decoy, his mate often doing likewise. This bowing-display (described by Blackburn 1964) was accompanied by low amplitude flute-like calls and was performed in a similar manner by both sexes.

The male would now approach the decoy fairly rapidly, stopping at intervals to display to it, his mate usually keeping her distance in the branches above. Displacement feeding, particularly by the male, was not uncommon at this stage.

All going well, the male would soon alight on the same perch as the decoy and cover the remaining distance to it with a series of hops and much bowing-display. The operator would now make a sudden dash towards the bird, so causing it to retreat down-hill in the opposite direction, where the net was spread in its path.

Even greater success was obtained when two remote speakers were used. These were placed either side of the net and about fifteen feet from it. By means of a selective switch at the tape-recorder, the operator was able to call birds back and forth across the net, so increasing the chances of a catch.

With the disappearance of her mate, the female would become agitated by his failure to answer her. A few well chosen calls replayed at this stage often resulted in her also being caught. On the other hand, in almost all instances, tape recordings had the opposite effect upon juveniles, causing them to retreat. In other cases, juveniles ignored the tape recordings completely. To them the calls probably conveyed the meaning that they were trespassing upon an occupied territory. Most of the six current season's birds caught were in either randomly set nets, or those set near the aviary in which their parents

were captive. Two, however, were caught by hand; one at night after it had been followed to its roost in a dense tangle of vines fifteen feet from the ground in coastal scrub; and the other, a chick not long out of the nest, was stalked in daylight after its parents had been caught. One young bird, which had not long left the nest, would not leave its parents' territory, even when the adult birds had been removed. It was pursued from one side of its range to the other, a distance of approximately 100 yards, and back again many times, but seemed loth to leave the area it knew.

During the four weeks ashore on Hen Island, no clutches of more than one chick were positively identified. Oliver (1955) records the clutch size on Hen Island as being two eggs.

OTHER METHODS OF CAPTURE

Various types of traps were tried, most of which required baiting with live insects, but none of these was successful. A drop trap placed beside the aviary and operated by a string to a nearby tent did catch a Saddleback that had been attracted to the aviary by the birds within. (See Table I).

METHODS OF CAPTURE AND NUMBERS OF BIRDS CAUGHT

TABLE I

Date	Mist-nets			Other Methods		Total
	Recorder & Decoy	Decoy Only	Random Set	Drop-Trap	By Hand	
9/1/64			1			1
10/1/64						–
11/1/64			2			2
12/1/64				1		1
13/1/64	1					1
14/1/64	1					1
15/1/64						–
16/1/64	1					1
17/1/64	2	1				3
18/1/64	2				1 (Juvenile at roost)	3
19/1/64	1	1				2
20/1/64	3					3
21/1/64	2					2
22/1/64	1					1
23/1/64		3			1 (Fledgling)	4
24/1/64		1				1
25/1/64	1					1
26/1/64	1					1
27/1/64	1					1
28/1/64	2					2
29/1/64						–
30/1/64	1					1
31/1/64	1					1
1/2/64	4					4
2/2/64			1			1
	25	6	4	1	2	38

ARTIFICIAL FOODS OFFERED AS BAIT

An assortment of artificial foods, such as bread, butter, broken biscuit, raisins, dates, diced cheese, dried apricots, carrot, mashed potato, fat and apple was offered on two tables in trees, but neither Saddlebacks nor other birds were seen to take these baits, natural foods being so abundant. Containers of honey-water, however, were frequented continuously by large numbers of Tui *(Prosthemadera novaeseelandiae)*, Bellbirds *(Anthornis melanura)* and Pigeons *(Hemiphaga novaeseelandiae)*. Saddlebacks were not observed to drink from them.

FOODS OF CAPTIVE SADDLEBACK

Birds caught were banded and placed in mutton-cloth bags for carrying back to the aviary. They were then freed in the aviary pending transport to the Chickens. Once in the aviary birds settled down quickly and were taking honeywater and food provided for them within minutes. Favourite foods were diced cheese, hard-boiled eggs, bread, butter, raisins and a mash made from oatmeal, breadcrumbs, broken biscuits, milk powder and raw eggs, mixed with milk to a damp crumbly consistency. Captive birds readily took ripe fivefinger *(Neopanax arboreum)* berries, earth-worms and all insects offered them, but they were particularly partial to ant-pupae and cockroaches, i.e. anything of obvious colour or movement. Much time was devoted to collecting insects, in particular cockroaches from under the bark of kanuka trees, so that live insects formed the basis of their diet. A maggot "factory" was used to maintain an additional supply of live food, both maggots and their pupae being readily accepted.

Captive birds would attack and eat the large weta *(Deinacrida megacephala)* in the following way:—

First the bird would approach to a safe distance and await its opportunity to lunge at the weta and puncture its abdomen, keeping well clear of the insect's fearsome hind legs. The weta would now move rapidly towards cover with the Saddleback in pursuit. Between attacks, the Saddleback would sit well back on its tail, like a Woodpecker. With the contents of the abdomen finally removed and devoured, the weta was left to die. Smaller wetas were held with one foot while the legs were torn off with the bill, some of which were eaten and others tossed away. With legs and antennae removed, the weta was then swallowed whole.

Earth-worms were stretched between foot and bill several times before swallowing. Sometimes they were broken in two beforehand.

BEHAVIOUR IN CAPTIVITY

It was quite remarkable how so many active territorial birds (up to 11) could live harmoniously together in a confined space for periods of up to 8 days. Not one instance of fighting was noted, although odd threat displays were seen. At first, captive birds would fight the netting, but would generally settle down within minutes of being placed in the aviary. They would then spend their time turning over litter or examining the foliage in the aviary, in search of insects. The honeywater container was seldom passed by without the birds drinking,

although, in the wild, birds were rarely seen to drink. It could be that the sweetened water either induced this thirst, or that they were just fond of it, preferring it to water.

Several instances of adult birds feeding juveniles were recorded. On one such occasion, a male bird was seen to feed a female and two juveniles also in the cage. The female was possibly his mate, but the young ones could not have been his progeny. The three would sit in a row on a perch with bills agape while the male busied himself collecting food for them, the female generally passing her share on to the young birds.

Another note-worthy fact was that captive birds, with rare exceptions, remained perfectly quiet throughout. Saddlebacks are characteristically a very vocal species.

LIBERATIONS

Of the thirty-eight Saddlebacks captured and banded, a total of ten pairs and three juveniles of unknown sex, were released on Middle Chicken Island, while a further pair, five males and two juveniles were taken to Mount Bruce Native Bird Reserve near Masterton. Unfortunately all but four of these latter birds died in transit as a result of a delay. The survivors, three males and a juvenile (which later proved to be a female), were flown directly to Masterton from Hen Island. Four surplus males were released again where caught, on Hen Island (see Table II).

The first liberation on Middle Chicken Island of one bird was made on 15/1/64 by A. Wright and the crew of the Lighthouse-tender "Colville," which called to service the Hen Island automatic lighthouse. A further transfer was made on 22/1/64 by the Whangarei Harbour Board's pilot launch "Ngapuhi." Other liberations depended upon the arrival of "Arataki" at irregular intervals from Auckland.

Whenever possible, birds for liberation were caught in the aviary while roosting at night and transferred early the following day in darkened boxes.

During the thirty-minute launch trip from Hen Island to Middle Chicken Island and the four-hour flight to Masterton, birds became distressed, particularly when subjected to vibration or high frequency sounds such as those from a two-way radio set.

Once ashore on Middle Chicken Island, birds were released just inside the bush canopy of the island's main valley. On one occasion, a bird so released panicked and flew directly out to sea. From its liberation point 40 ft. above sea level, it rapidly lost altitude to crash in shallow water after flying only 40 yards. It was immediately snatched from the water while it swam and held its wings aloft. This incident occurred in the early afternoon of a fine, warm day, so that the bird would have soon dried out.

Concern was at first felt for liberated birds when the island's only stream was found to be dry. However, on examining the leaf bases of collospermums and astelias, which were plentiful, many were found to contain trapped rain water despite this exceptionally dry season. Other bird life appeared quite prolific and varied, as on Hen Island ,so no doubt sufficient water was available for their needs.

TABLE II — SADDLEBACK RELEASE

Date	Middle Chicken Island	Mt. Bruce Reserve	Released where caught on Hen Is.	Died (Hen Is.)	Total
11/1/64				1	1
12/1/64			1		1
14/1/64		3			3
15/1/64	1				1
18/1/64	4				4
22/1/64	11				11
23/1/64	3				3
25/1/64				1	1
26/1/64			1		1
27/1/64			1		1
29/1/64	4				4
31/1/64			1		1
4/2/64		6			6
	23	9	4	2	38

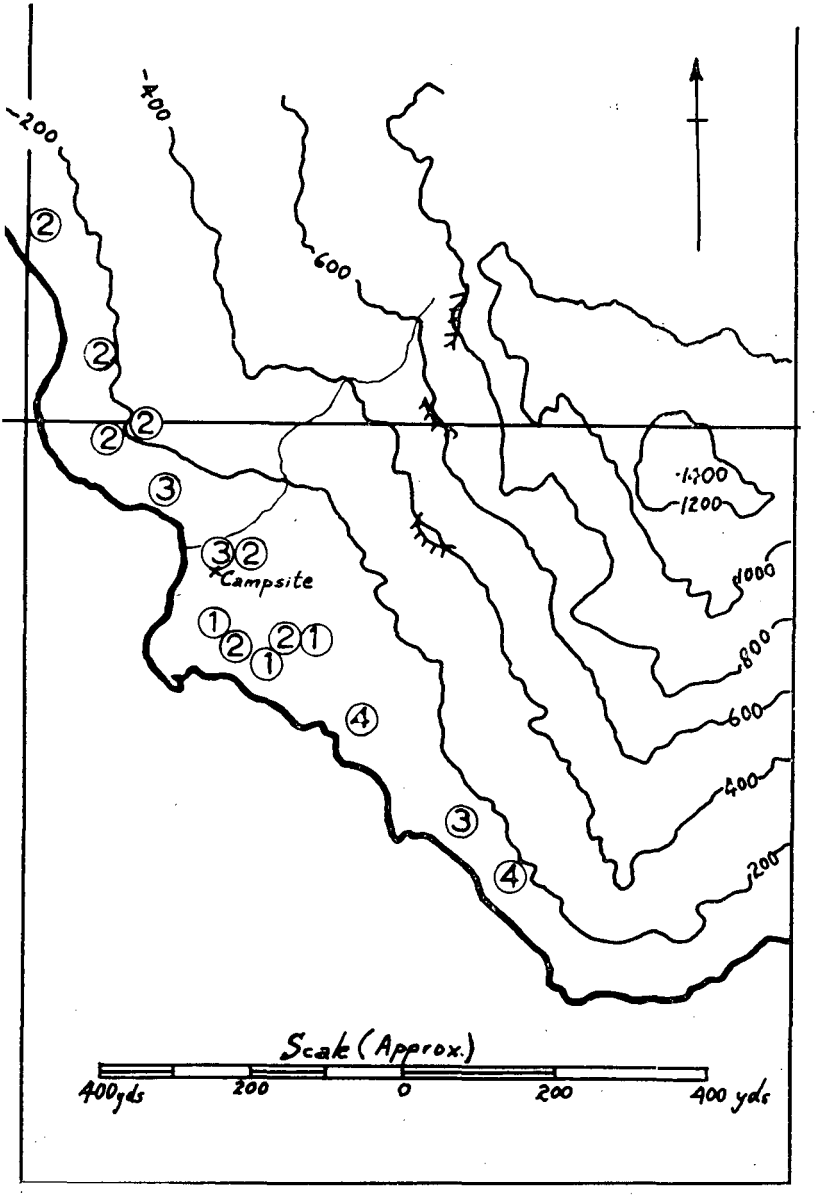
JUVENILE PLUMAGE

A fledgling Saddleback which died on 25/1/64 was preserved as a study skin and presented to Dominion Museum, Wellington. This Hen Island specimen was typical of all other juveniles caught and seen here, in that it closely resembled an adult in both size and colour, but the bill and tail were noticeably shorter than those of an adult, i.e. bill 25 m.m., tail 66 m.m. (adult bill 28.5 m.m. to 32 m.m., tail 80 m.m. to 90 m.m. Oliver 1955). Plumage of Hen Island juveniles lacked the glossiness of an adult's and the chestnut saddle was of a duller hue. The fawn edging of the upper saddle was absent in juveniles and the wattle small and pale. These birds had a distinctive call which resembled an adult's territory call. On the other hand, Gordon (1938) states; "In 1880, Reischek met with plenty of Saddleback on Hen Island, including entirely brown birds which he wrongly identified as a new species. In reality, these were immature Saddlebacks in their first year plumage known to the early colonists as "jack-birds." Mystery, however, still surrounds these coffee brown adolescents, for, in some haunts of the adults, they have never been seen at any season."

Similarly, Wilkinson and Stidolph (1927) mention a report of a pair of Saddlebacks on Kapiti Island on 4/4/26, following the liberation there the previous October from Hen Island, feeding a "jack-bird" which was brown all over, as large as its parents, with small wattles and no saddle, i.e. identical to a juvenile of the South Island Saddleback. If these reports are reliable, then it would appear that the "jack-bird" plumage of young South Island Saddlebacks is not entirely unknown in the northern sub-species.

GENERAL

All Saddlebacks taken were caught within a half mile radius of Dragon's Mouth Cove, i.e. the south-western slopes of Hen Island, between the eastern end of Pukanui Bay and Lighthouse Bay (see Fig. 1). Not all pairs were removed, the more difficult ones were abandoned after attempts to catch them had failed, but the impression made in the local Dragon's Mouth Cove population was most noticeable towards the end of January, when virtually no calls at all were heard from this area. Roving juveniles, however, soon arrived to fill the vacuum created by the removal of established pairs.



[I. A. E. Atkinson, Del.

Fig. 1 — Distribution and numbers of Saddlebacks captured for transfer to Middle Chicken Island: January - February 1964. Map shows western end of Hen Island: outline and contours from Lands and Survey multiplex map (aerial survey No. 620).

During nine days ashore at Dragon's Mouth Cove, Hen Island, in late December 1964, G. J. H. Moon (pers. comm.) could see no apparent reduction in local Saddleback numbers. This seems to indicate that territories vacated during the previous January were again occupied.

Post-liberation checks on Middle Chicken Island by Wildlife officers have revealed that the Saddlebacks released there have not only survived but have also bred successfully. During a visit on 20/5/65, twenty-two Saddlebacks were located, seven of which were juveniles bred on the island (see Fig. 2).

The four Saddlebacks at Mount Bruce Native Bird Reserve settled down remarkably well. In August of this year the two-year-old female and her mate nested, laying two eggs which hatched on 18/9/65 after an eighteen day incubation period. The two young that fledged in mid-October are probably the first North Island Saddlebacks ever bred in captivity.

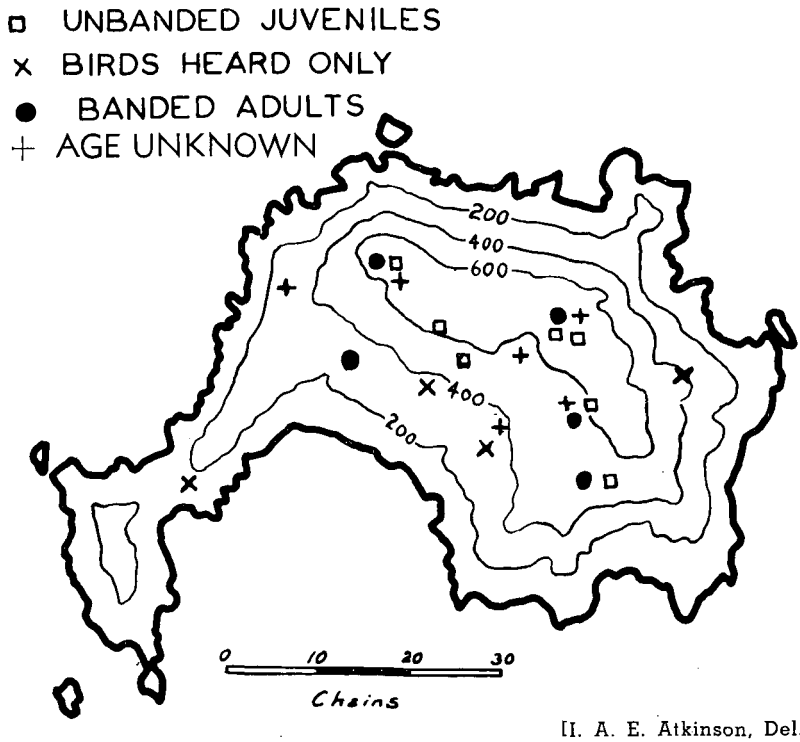


Fig. 2 — Distribution of Saddlebacks on Middle Chicken (Whakahau) Island on 20th May, 1965, sixteen months after liberation. Outline from Lands and Survey Department aerial photograph 1314/B6. Sketch contours from Aerial Plan No. 715 of the Photogrammetic Branch, Lands and Survey Department.

CONCLUSIONS

1. No interest was shown in artificial baits offered to wild birds, a rich assortment of natural foods being available.
2. Mist-netting proved by far the most efficient means of capture when used in conjunction with a tape recording of Saddleback calls and a decoy.
3. Best results were obtained when mist-nets were set with larger "pockets" than usual.
4. Captured birds must not be confined alone in small cages for more than a few hours.
5. Captive birds readily accept a variety of foodstuffs, both natural and artificial.
6. Captive birds show remarkable tolerance towards one another, even when closely confined for long periods.
7. The average fledged brood size in January was very small, possibly as low as one young bird.
8. Both fledglings and juveniles seen resembled parent birds in size and colour.
9. The maximum range of the North Island Saddleback in flight, even when over water, appears to be very short.

ACKNOWLEDGEMENTS

I wish to acknowledge with hearty thanks the assistance given by the team named in the introduction above, who so willingly gave up their holidays to spend long days exercising patience helping with this often frustrating task. Without their ready co-operation, this project could not have achieved the success which it did. Special thanks are due to J. L. Kendrick, whose inspiration it was to use a tape recording of Saddleback calls in conjunction with a mist-net to catch these birds. Mr. Kendrick also gave valuable technical assistance and both he and M. G. MacDonald kindly made available their sound recording equipment for the project.

The co-operation of the Commodore, Navy Department, Auckland, in making available H.M.F.A. "Arataki" was greatly appreciated and overcame the major obstacle, that of transport. Mr. E. F. Brick, Master of the tug "Arataki," is to be commended for the fine service he provided us.

Thanks are also due to the Commander, Northern Military Districts, Army Department, for providing a radio transmitter and operator.

Miss V. S. Hudson and Mr. I. A. E. Atkinson kindly prepared the accompanying maps.

REFERENCES

BELL, L. C., 1949: "Report on Visit to Hen and Chicken Islands" 17/5/49 to 6/6/49. Dept. Internal Affairs, Wellington, file No. 46/62/19.

1950: "Report on Saddleback Transfer from Hen Is. to Chicken Islands," 1st to 12th June, 1950. Dept. Internal Affairs, Wellington, file No. 46/62/19.

BLACKBURN, A., 1964: "Some Observations on Behaviour of the North Island Saddleback in August." Notornis XI, 87-92.

GORDON, M., 1938: "The Children of Tane." P. 127. Whitcombe & Tombs Ltd., Christchurch.

OLIVER, W. R. B., 1955: "New Zealand Birds," second edition, p. 513-514, A. H. & A. W. Reed, Wellington.

WILKINSON, A. S., & STIDOLPH, R. H. D., 1927: "Saddlebacks and 'Jackbirds'." N.Z. Journal of Science and Technology, IX; p.235-236.