

REVIEWS.

A Handbook of the Birds of Western Australia, by D. L. Serventy and H. M. Whittell, 1948. Pattersons Press, Ltd., Perth; 365 pp., 2 col. plates and 32 text figs. (15/- Aust. currency.)

Two leaders of ornithology in West Australia offer a book which "they wished had been available to them when beginning the study of local birds." Introductory sections cover history of exploration and bird geography, a valuable synthesis. The detailed treatment of each of 355 species includes aboriginal and other names, outline description, detailed distribution in West Australia, nesting and habits, migration. Separate indices cover history, vernacular names, native names, and scientific names. The format is attractive and the text crammed with useful and interesting matter: important field characters are italicised for emphasis. Subspecies are not dealt with, references to literature are generally omitted and there is no bibliography; perhaps such technical trimmings are out of place in a beginner's book any way. The illustrations are mostly good but lamentably few. But as the Emu reviewer concluded, "there are really 'no complaints'" and our chief reaction is envy—when will a New Zealand ornithologist find time, inclination, and a publisher to offer us something like this?—C.A.F.

The Three Kings Islands: New Zealand's Northern Outliers. Records of the Auckland Institute and Museum; Vol. 3, Nos. 4 and 5; pp. 189-341; December, 1948. (Special Three Kings Number, containing 15 papers on the natural history of the archipelago.)

New Zealand naturalists are so accustomed to waiting long years for the scientific reports of expeditions to see the light of publication that they will welcome this meaty volume containing the results of some six visits to the Three Kings Islands by parties or individual officers of the Auckland Museum staff between 1934 and 1948. Because the Museum "Records" may not be readily accessible to all who are interested in Three Kings birds, this review is an attempt to summarise the relevant parts of the publication, which includes contributions on chronology of exploration, geography, rocks, Maori carvings, flora and vegetation, the effect of goats, land invertebrates, lizards and birds.

The Three Kings Islands, 35 miles north-west of Cape Reinga, lie "east and west in a serrated line," and access is hindered by "precipitous coast, strong tidal currents and the heavy swell." A new map of the group (courtesy Lands and Survey Department) appears as a frontispiece, but it lacks scale, latitude and longitude, and even an author to blame for these not unimportant omissions! Great Island (1000 acres), once clothed in coastal forest, has "undergone profound changes during early Maori settlement (before 1840) and later as the result of the influence of goats"; the three other sizeable islands are "still covered except on the most rocky cliffs, by dense forest and scrub." Cheeseman listed the birds observed on Great and South West Islands in 1887 and 1889, and a few later records for Great Island have been published. The group was declared a sanctuary in 1930. The intrepid landings from a yacht on North East, South West and one of the Princes Islands by M. F. Johnson and G. A. Buddle in 1947 and 1948 provided data to supplement bird observations made on longer visits to Great Island by E. G. Turbott, P. C. Bull and G. A. Buddle, particularly on the "Arbutus" (1945) and Internal Affairs Wild Life Branch (1946) expeditions.

G. A. Buddle (The Outlying Islands of the Three Kings Group, pp. 195-204) gives a modest account of his landings on the smaller islets, with notes on the plants and birds of these precipitous rocks. Everyone will read between the lines of his restrained narrative of the assault on North East Island. We can all envy the experience of two enthusiastic naturalists setting foot where none has gone since Maori times.

The Internal Affairs Expedition, accompanied by E. G. Turbott, camped five weeks on Great Island and succeeded in exterminating the goats, 393 or 398 in number (authorities differ, but no matter). The first significant results of vegetational regeneration are recorded. Turbott (Effect of Goats on Great Island, Three Kings, with Descriptions of

Vegetation Quadrats, pp. 253-272) describes vividly the "all-invading *Leptospermum ericoides* (kanuka) communities" due to Maori clearing and "the selective effect of grazing and browsing" by goats. Pathetic relict groves of the original distinctive coastal forest (with its interesting endemic element) were "of but impermanent status" when the goats were exterminated, the individual trees with trunks often ringbarked and with foliage always browsed and denuded below the reach of goats. "The island has a greatly impoverished land bird fauna" and four of the eleven species recorded were no longer present in 1946, a result attributed to "continued modification by goats." Comparison with other offshore islets suggests that the original fauna may have been more diverse. Bellbird, pipit and morepork are, in that order, the most abundant species. Goats have also limited the distribution of breeding seabirds. Pains-taking accounts of surveyed "quadrats" will allow precise study of the regeneration of vegetation, a noteworthy addition to New Zealand's scant list of works on the ecology of outlying islands.

Birds of The Three Kings Island, by E. G. Turbott and G. A. Buddle (pp. 319-336) includes a section on ecology and distribution and a systematic list of the following species (those marked * are breeding, and those marked † are believed extinct): Blue penguin, *diving petrel, white-faced storm petrel, flesh-footed, Buller's, allied, *sooty and *fluttering shearwaters, *grey-faced petrel, *black-winged petrel (*Pterodroma hypoleuca nigripennis*), *an unidentified petrel heard at night (*Pterodroma* sp.), pied shag, *gannet, white-fronted tern, *red-billed gull, *banded rail, *spotless crake, pukeko, *brown quail (*Synoiacus* sp.), *harrier, *morepork, *red-fronted and *yellow-fronted parrakeets, long-tailed cuckoo, *kingfisher, *pipit, †fernbird, †grey warbler, *pied fantail, silver-eye, †tui, *bellbird, and self-introduced *chaffinch, redpoll, goldfinch, sparrow, yellow hammer, *thrush, *blackbird, *hedge sparrow and *starling.

The discovery of the black-winged petrel was briefly noted in N.Z. Bird Notes (vol. 2, p. 11); on December 3, 1945, P. C. Bull saw the birds by torchlight, flying erratically and chasing in pairs, uttering "a shrill piping and moaning note" in the air, a croaking note on the ground where they landed about 9.30 p.m. At least 12 pairs were observed, eight birds were measured and photographs taken, but not published here. (This would have been a welcome addition.) In April following, burrows had recently been vacated and breeding season is inferred to be the same as for the Kermadec Island population: laying from late December and departure of young in mid-April. Of other petrels, *Puffinus carneipes* and *P. bulleri* are suspected to breed; Cheeseman's record of *P. assimilis* has not been confirmed, but a burrow with feathers suggested this species.

The Three Kings form perhaps the largest breeding station in New Zealand for the red-billed gull, "but no estimate of the total numbers is attempted." Spotless crakes are rare on Great, fairly plentiful on South West Island. The brown quail is not identified specifically because of Falla's hitherto unpublished suggestion that *Synoiacus* inhabiting offshore islands may be remnants of an indigenous race living in New Zealand prior to the introduction of Australian forms of *Ypsilophorus* (1867-71). Parrakeets have decreased since 1934 and the yellow-fronted species present in 1934, is regarded as extinct, as also are the fernbird, grey warbler and tui, recorded by Cheeseman. Three of four fantails from Great Island are of a mutant form with "a particularly wide and distinct band of white-tipped feathers between the black foreneck and the buff underparts," which, moreover, are "yellowish buff." The establishment of this mutant is attributed to the "Sewall Wright effect" in a population of "not more than fifty." The silver-eye has been observed in late years only as small straggling non-resident flocks.

The Three Kings bellbird (*Anthornis melanura obscura*, Falla), known to be distinct since 1934, is at last described in a short contribution by R. A. Falla (A New Anthornis from the Three Kings Islands, pp. 337-338). Compared with the nominate form, the new race is slightly

larger, with dull olive green male plumage, lacking the yellowish olive traces of the underparts, with dull violet instead of bright purple gloss on head, and white, instead of yellowish, pectoral plumes and under-tail coverts—characters readily apparent in the field and said to be “as well marked as, indeed in some respects more marked than” those of the Chatham Island bellbird. In a useful table of measurements, the North and South Island birds are not separated subspecifically, but the Auckland Island *incoronata* is given specific rank—this last surely a lapsus.

This volume is a symptom of a healthy policy of constructive conservation on the part of Auckland Museum officers, which, implemented by the action of the Department of Internal Affairs, has saved Great Island from the fate of St. Helena. The Museum hopes to record future recovery of the vegetation and fauna in future publications.—C.A.F.

Inbreeding Among Birds in the Wild State, by L. E. Rochdale, Dunedin. Emu, Vol. 48, May, 1949, p.p. 282-290; one illustration.

Further results of an intensive study of breeding yellow-eyed penguins are apparent in this article, in which the author publishes his conclusions after twelve years' of observations of this species on Otago Peninsula. Out of a total of 386 separate annual matings of banded birds, 398 fledglings entered the sea and all these birds were marked. Of the latter number, 162 were seen subsequently and from the foregoing data the author discusses the incidence of inbreeding in this species. He showed that the chances of inbreeding between parent and offspring, or between brother and sister were decidedly remote. The only case of inbreeding recorded among these penguins is between a brother and a sister. From the literature available he can find only four other instances on record of inbreeding in other species of birds in a wild state, probably due, he states, “to lack of opportunity, largely because of the poor return of young to their exact place of hatching.” If it did occur, it did not appear to be harmful.—R.H.D.S.

Notornis Rediscovered, by E. A. Falla, Dominion Museum, Wellington. Emu, Vol 48, May, 1949, pp. 316-322; five illustrations.

The story of the dramatic rediscovery of the notornis or takahe (*Notornis hochstetteri*) by Dr. G. B. Orbell, of Invercargill, and subsequent observations of the bird's habits by the author of this paper in an area west of Lake Te Anau, is placed on permanent record in this article. After a brief historical survey of the species and the events leading up to the rediscovery of the takahe on November 20, 1948, by Dr. Orbell and his party, the author gives first-hand information of the bird's habits, gained on a later visit to the area in January, 1949.

Salient points of Dr. Falla's paper are: The birds inhabit an area of about 500 acres—the basin of a valley 2,000 feet above the level of Lake Te Anau (which is 684 feet above sea level). There is little variety of food for bird life, nor is it in abundance. A takahe was seen stripping flowers and seeds of *Danthonia* (snow-grass) by running the stalks through its bill. The succulent bases of *Carex* (sedge) and the stripped fleshy stalks of *Aciphylla* (spaniard) are also eaten. The droppings of the birds are remarkable and characteristic, and provide a good clue to the presence of this species. The solid cylindrical faeces are half an inch in diameter and up to six inches and more in length. Some droppings composed of moss were found in one area. Not unlike the weka in its movements and general stance, the takahe flicks its tail at almost every step, and runs well. It has a loud call, somewhat like that of the weka “and not unlike a powerful version of the Californian quail”; when calling a chick, “cowp-cowp-cowp”; a scream when pairs are separated and an alarm note of “boomp-boomp.” The nest is built on the ground between tussocks of snow grass, being constructed of grass. An egg seen by the party was dull cream, with brown spots and faint mauve blotches and measured 73.5 x 48.3 millimetres. The chick somewhat resembles a pukeko chick. An estimated total of 100 birds in two