

The Parma Wallaby and its Future

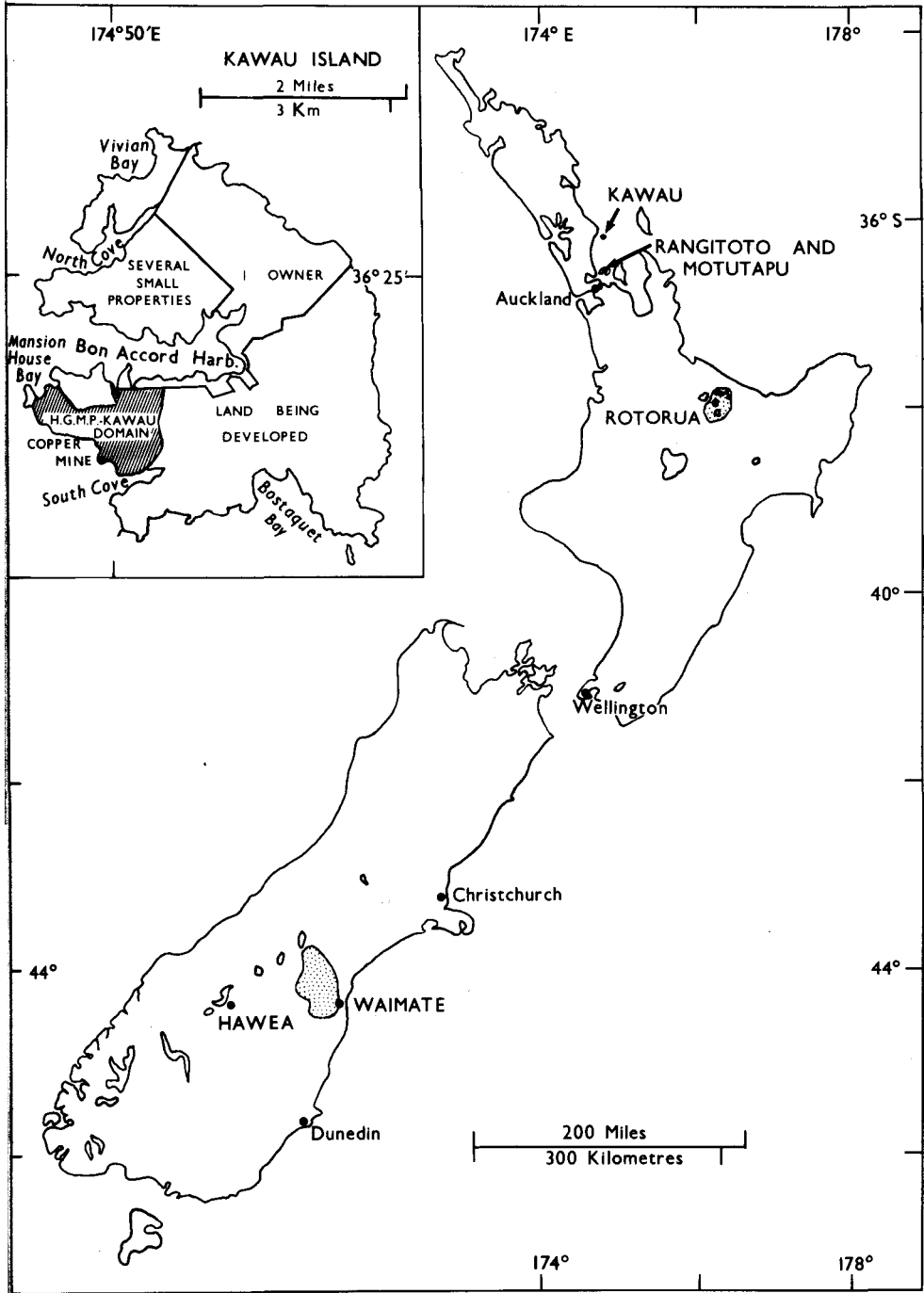
K. Wodzicki and J. E. C. Flux

Until 1966 the parma or white-throated wallaby *Macropus parma* was believed to have been extinct in Australia for over thirty years. But in that year the authors discovered a considerable number on the New Zealand island of Kawau, where they had been introduced a century ago, as described in *Oryx* December 1969. Like other wallabies they had been shot and poisoned in considerable numbers because of the damage they do to tree seedlings and agricultural land, but the authors are hopeful that management plans now in hand will ensure their survival unmolested.

New Zealand is well known for the large number of introduced mammals and birds that became established in the latter part of the nineteenth century.⁶ This imposing menagerie includes seven species of marsupials, the largest number found anywhere outside their natural range of Australia, New Guinea and the Americas. In 1966 a study of the wallabies in New Zealand led to the discovery of the parma or white-throated wallaby *Macropus parma* on the 520-acre island of Kawau.⁷

The map shows the present distribution of the six species of wallaby that occur or were recently known to occur. The history of these introductions is not fully documented, but it is known that the red-necked or brush wallaby *M. rufogrisea* was introduced about 1874 by the owners of Te Waimate Sheep Station, Canterbury, South Island, and a few were recently transferred to Hawea; the dama or tamar wallabies *M. eugenii*, found near Rotorua, North Island, were probably liberated by local people, as were the brush-tailed rock-wallabies *Petrogale penicillata* on Motutapu and Rangitoto Islands, in Hauraki Gulf, North Island; and five species – the parma, dama, black-tailed *M. bicolor*, black-striped *M. dorsalis*, and rock-wallabies – were all liberated on Kawau Island about 1870, it is presumed by Sir George Grey, a Governor and Prime Minister of New Zealand, who maintained a zoological park on that island. Other exotic species still present on Kawau include fallow deer *Dama dama*, opossums *Trichosurus vulpecula*, rosella parakeets *Platycercus eximius* and even kookaburras *Dacelo novaeguinae*.

During the last 25 years all wallabies in New Zealand have been subjected to control measures of varying intensity and were declared 'noxious animals' under the 1956 Act of that name. On the mainland they did not spread widely from the areas where they were liberated, but control may have resulted in their spreading: for example, near Waimate the red-necked wallaby spread from an original 100,000 acres to nearly 2,000,000 acres, and numbers increased to about 750,000, but between 1960 and 1965 shooting and poisoning reduced them to an estimated 3500. On islands, such as Motutapu and Rangitoto, the wallabies fared better until recently because they occupied land of little economic importance. On Kawau Island, since early times, wallabies



have been shot in large numbers. Thomson (1922) says that 'even in Sir George Grey's time, as many as two hundred wallabies would be killed in a Battue . . . Mr Cheeseman tells me that when the island of Kawau was sold, the new owners encouraged shooting parties to go down – indeed contracts were let to kill the marsupials off the island – and the slaughter was great . . . There are still a few left about Kawau, not more than a dozen or two, according to Colonel Boscawen'.

In Australia the parma wallaby, once common round Sydney, dwindled fast as the land was settled, and Troughton⁵ considered that it was probably extinct in Australia. When Dr W. D. L. Ride reviewed the white-throated wallaby's taxonomy,³ he found only twelve museum specimens in existence. However, some wallaby skins at the Australian Museum, Sydney, collected on Kawau about 1930, resembled those of the parma, and it was at Dr Ride's suggestion that the writers investigated the wallabies on Kawau Island and re-discovered the species there.

The white-throated and dama wallabies are very similar in size and general appearance, but the inhabitants of Kawau Island distinguish them by their overall colour as 'silver greys' (dama) and 'small browns' (white-throated). A closer investigation showed several minor features that helped to separate them, and skull characters, especially the shape of the third incisor, are diagnostic.⁸ Differences in their distribution showed up when we plotted the location of all wallaby skulls found on the ground. Until recently dama wallabies abounded in the southern part of the island, where clearings and open vegetation prevailed, whereas the white-throated was more common in the northern, scrub-covered half of the island, north of the land being developed (see inset on the map).

A Wallaby Reserve

In 1968, two years after its re-discovery, and following representations made to the Minister of Forests, the white-throated wallaby was given official protection. This, however, did not help its conservation as much as was hoped. The increase in pastoral land in the south is destroying much wallaby habitat and also leads to control measures round the pastures; moreover, the difficulty in distinguishing the parma from the dama has probably led to the shooting of a good many parmas by inexperienced shooters. Nevertheless, during a brief visit to Kawau in mid-December 1969, one of us found more wallaby signs on the north side, particularly near Vivian Bay; and this was confirmed by Don Kinloch's live-trapping of mainly parmas in this area in a recent ecological study of the species (pers. comm., December 1969). Another development that may assist the preservation of the white-throated wallaby is the acquisition by the Crown of about 200 acres adjoining the 150 acres already held round the Mansion House to form a part of the Hauraki Gulf Maritime Park. If this area can be managed as a wallaby reserve (which could be a valuable tourist attraction) it will promise well for the future of the parma and other wallabies. At present, however, there are relatively few parmas in the south of the island, and selective control may be necessary to favour them at the expense of the commoner damas.



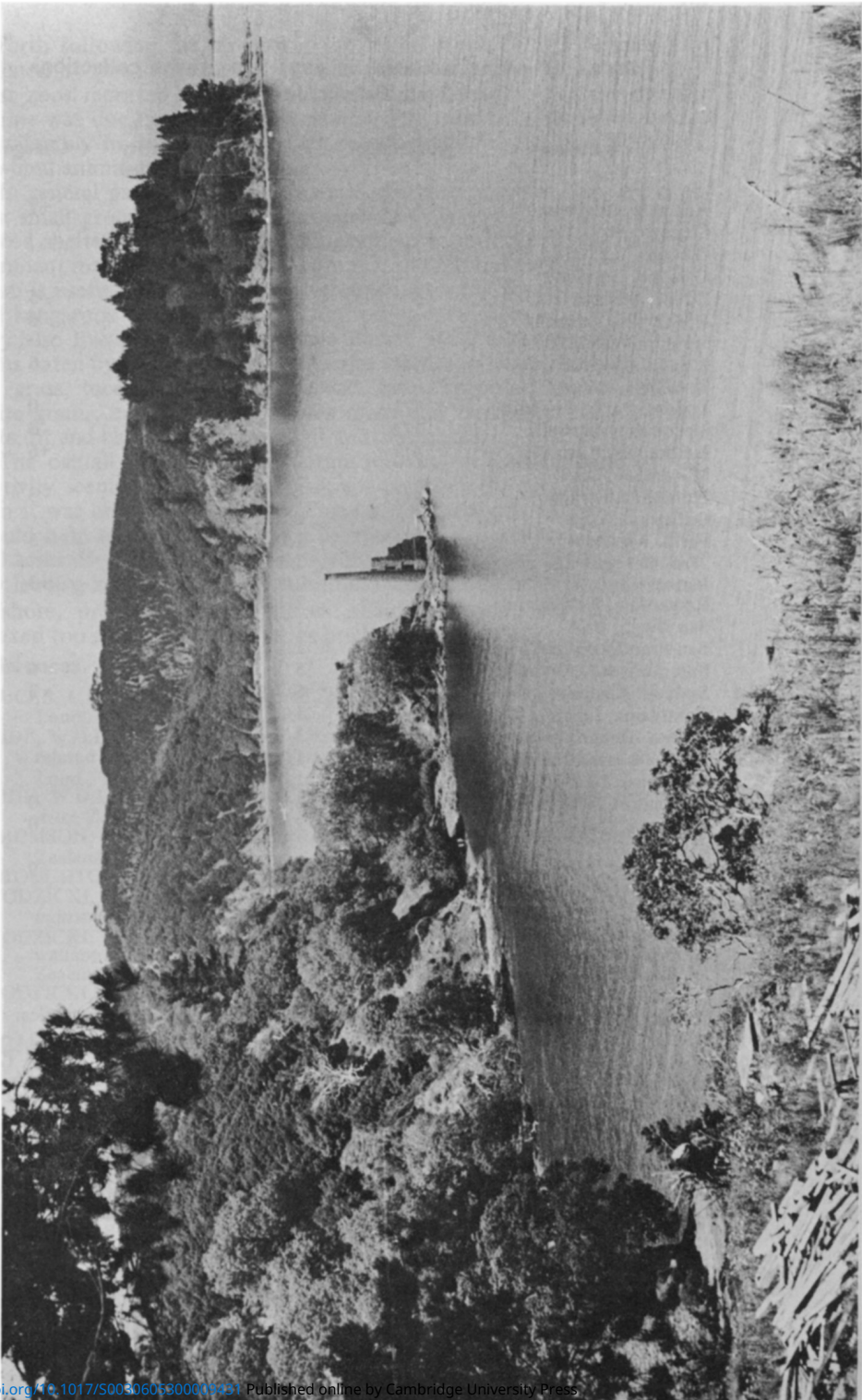
The position of the parma wallaby on Kawau is therefore complex. In the south, most of the land is being developed, although a 350-acre reserve is proposed. In the north, half the land is under one owner, rendering future policy precarious, and a scrub fire might at any time wipe out most of the wallaby habitat. (Grassed fire-breaks would be a most worth-while safeguard and would improve the habitat for wallabies.) It is clearly desirable to keep some specimens in zoos as a safeguard, to form the nucleus of breeding colonies. There is also considerable interest in re-introducing the species into Australia, but this of course should only be done after its present distribution and numbers there are clarified. Two parma wallabies were recently found about 40 miles from Sydney near Gosford, N.S.W.³ (G.B. Sharman pers. comm.), and unsuccessful attempts were made to rear two pouch young whose mothers had been killed by cars, but nothing appears to be known of the size of the population, and the fact that one (possibly two) parmas have escaped from Sydney Zoo makes even these records suspect.

Export to Zoos

Between 1966 and March 1970 at least 837 wallabies, 384 of them parmas, were exported alive from Kawau Island to zoos all over the world with the encouragement of the New Zealand government (Department of Agriculture export statistics; P. I. Dix, D. E. Hopkins, L. T. Pracy, pers. comm.). The wallabies were initially caught in foot snares attached to a bent pole, but wooden boxtraps were later found to be safer. They were kept in pens on the island for a few weeks until they settled down before being sent overseas by air. Some exporters used tranquillisers to help the animals over their initial fear in captivity, but mortality rates have been high and probably only half those caught lived to reach an overseas zoo. Parma wallabies fetch up to £150 in Britain, and by 1968 it became clear that the Kawau stock was being overexploited and restrictions were imposed by ministerial public notification prohibiting the taking, killing, or having possession of *M. parma* except with special approval. Since then the New Zealand Forest Service has been responsible for the study, control and capture of parma wallabies. Although they are hard to identify even by experts, more detailed records of the numbers of each species leaving New Zealand would greatly help their future management.

In February 1970 we sent a questionnaire to the 29 zoos known to have bought parmas to see how well they were faring in captivity, requesting information on the numbers purchased, the current stock, breeding success, and any management details such as enclosure size, food or shelter, which might be useful to other zoos. Fourteen replied (see Table; the other stocks listed are taken from the International Zoo Yearbook¹ excluding Oklahoma City Zoo, whose stock of eight wallabies were misidentified as parmas (J.A.W. Kirsch, pers. comm.)). The table suggests that at least 172 and perhaps as many as 239 parma wallabies are now established in 33 zoos, but it is disappointing that 11 of these hold three or fewer individuals, which must be considered a poor breeding risk. Also, the questionnaire returns show that, excluding three animals at Macquarie and the five that died

In the Kawa Domain reserve, in Haruaki Gulf Maritime Park. Thick tree and shrub cover with open clearings makes this good wallaby habitat, but much of the Domain is pine forest. In the centre the Domain is an old coppermine. *K. Wodzicki*



**Status of parma wallabies in zoos and private collections
(Male/Female/Juvenile)**

| Location | No. Bought | Present stock | Time in captivity (months) | Change |
|--------------------------|--------------|----------------------|----------------------------|-----------|
| Adelaide, Australia | 6/12 | 25* | 29 | +7 |
| Chicago, Brookfield, USA | | 2/2/1 | | |
| Chicago, L.P., USA | | 1/2/1 | | |
| Cologne, Germany | | 4/5 | | |
| Dubai, Arabian Gulf | 5 | 0 | 6 | -5 |
| Healesville, Australia | 2/2 | 0/4 | 16 | 0 |
| Jersey, Great Britain | | 1/1 | | |
| Karachi, Pakistan | 4/4 | 1/1 | 14 | -6 |
| Krefeld, Germany | | 1/2 | | |
| London Parks, England | 1/1 | 1/1 | 17 | 0 |
| Macquarie, Australia | 1/2 | 0 | 1 | -3 |
| Melbourne, Australia | 5/7 | 9/9 | 20 | +6 |
| Milwaukee, USA | | 1/0 | | |
| Monash, Australia | 4/11 | 5/6/1 | 20 | -3 |
| Oklahoma, USA | | 1/5/2 | | |
| Perth, Australia | 2/4** | 1/0 | 28 | -5 |
| ?Providence, USA | | 2/1 | | |
| Rome, Italy | 2/3 | 2/3/3 | 12 | +3 |
| Rotterdam, Netherlands | | 2/1/1 | | |
| San Diego, USA | | 1/2/1 | | |
| San Francisco, USA | | 1/2 | | |
| Summertown, Australia | 5 | 5 | 6 | 0 |
| Sydney, Australia | 9/13 | 6/7/6 | 25 | -3 |
| Tokuyama, Japan | | 1/2 | | |
| Tokyo Tama, Japan | | 3/3 | | |
| Wasaga Beach, Canada | | 1/1 | | |
| Wassenaar, Netherlands | | 1/1 | | |
| Wellington, New Zealand | 5/11 | 6/7/3 | 9 | 0 |
| Winnipeg, Canada | 2/7 | 2/6/1 | 11 | 0 |
| Totals: | 43/77 | 56/74/20 + 30 | | -9 |

*Includes 5 recently distributed to private collections

**Delayed by air strike. Five died shortly after arrival.

?Uncertain identity

Buyers of parmas (with number supplied) from whom we received no replies:

Tropicanim, France (20); Van den Brink, Holland (7); Paris, France (28); Antwerp, Belgium (8); Rene Levet, France (4); Isle of Man, Britain (?); Colchester, England (?)

Acknowledgments

We are very grateful to the Directors of all the zoos and owners of private collections who replied to our questionnaire; to Mr. D. E. Hopkins and Mr. L. T. Pracy for information on wallabies on Kawau Island; and to Mr. B. M. Fitzgerald, Dr. J. A. Gibb and Mr. D. Kinloch for helpful comments on earlier drafts.

at Perth following the air strike, the initial stock of 122 animals has declined by one in the past 16 months (the average period in captivity). Most zoos reported that parma wallabies bred readily, and the overall decline was due largely to adult deaths. This mortality should decrease considerably in the future when the stock will comprise mainly tamer, zoo-bred animals.

In general parma wallabies thrive in captivity provided they are kept in a small group, and in an enclosure of at least half an acre. Widely spaced shelter boxes and food troughs help to reduce friction between dominant males (D. Wood, pers. comm.), and natural cover of bushes or scrub is useful for shelter. Mixed groups of several species of wallabies and kangaroos will live together, and other correspondents report that they also live peaceably with Cape Barren geese and deer. The list of items eaten by parma wallabies includes: apples, oranges, bananas, fresh cut grass, lucerne, corn, oats, bread, bran, sprouted barley, soaked white grams, carrots, turnips, stock mash and various prepared animal diets, fir and elm branches, raw salt and clay cakes.

The overall position of the parma wallaby on Kawau Island and in captivity seems reasonably hopeful, and certainly the species is far safer than it was only five years ago. Three main developments now in hand should help to ensure security: a carefully managed reserve of at least 350 acres on Kawau; stabilised breeding colonies of 30-50 animals in a few leading zoos; and the establishment of breeding colonies on one or offshore, predator-free Australian islands. Provided vigilance is not relaxed too soon, the future looks bright.

References

- ¹ LUCAS, J. (Ed), 1970. International Zoo Yearbook. No. 10. Zoological Society of London.
- ² RIDE, W.D.L., 1957. *Protemnodon parma* (Waterhouse) and the classification of related wallabies (*Protemnodon*, *Thylogale*, and *Setonyx*). *Proc. Zool. Soc. Lond.*, 128: 327-346.
- ³ RIDE, W.D.L., 1968. On the past, present, and future of Australian mammals. *Aust. J. Sci.*, 31: 1-11.
- ⁴ THOMSON, G.M., 1922. The naturalisation of animals and plants in New Zealand. London
- ⁵ TROUGHTON, E., 1965. Furred animals of Australia. Sydney.
- ⁶ WODZICKI, K.A., 1950. Introduced mammals of New Zealand. *N.Z. Dep. sci. industr. Res. Bull.* 98.
- ⁷ WODZICKI, K. and J.E.C. FLUX, 1967a. Re-discovery of the white-throated wallaby, *Macropus parma* Waterhouse 1846, on Kawau Island, New Zealand. *Aust. J. Sci.*, 29: 429-430.
- ⁸ WODZICKI, K. and J.E.C. FLUX, 1967a. Guide to introduced wallabies in New Zealand. *Tuatara*, 15: 47-59.

IUCN Publications

The proceedings of the 1969 IUCN meetings at New Delhi run to four volumes (with three more promised): two on the General Assembly and two on the Technical Meeting. Of the last two, vol. 1 covers the Ecology Commission (land-use planning, pollution in natural ecosystems, wildlife utilisation and management, oceanic islands and research in India), and vol. 2 the meetings of the Survival Service Commission.

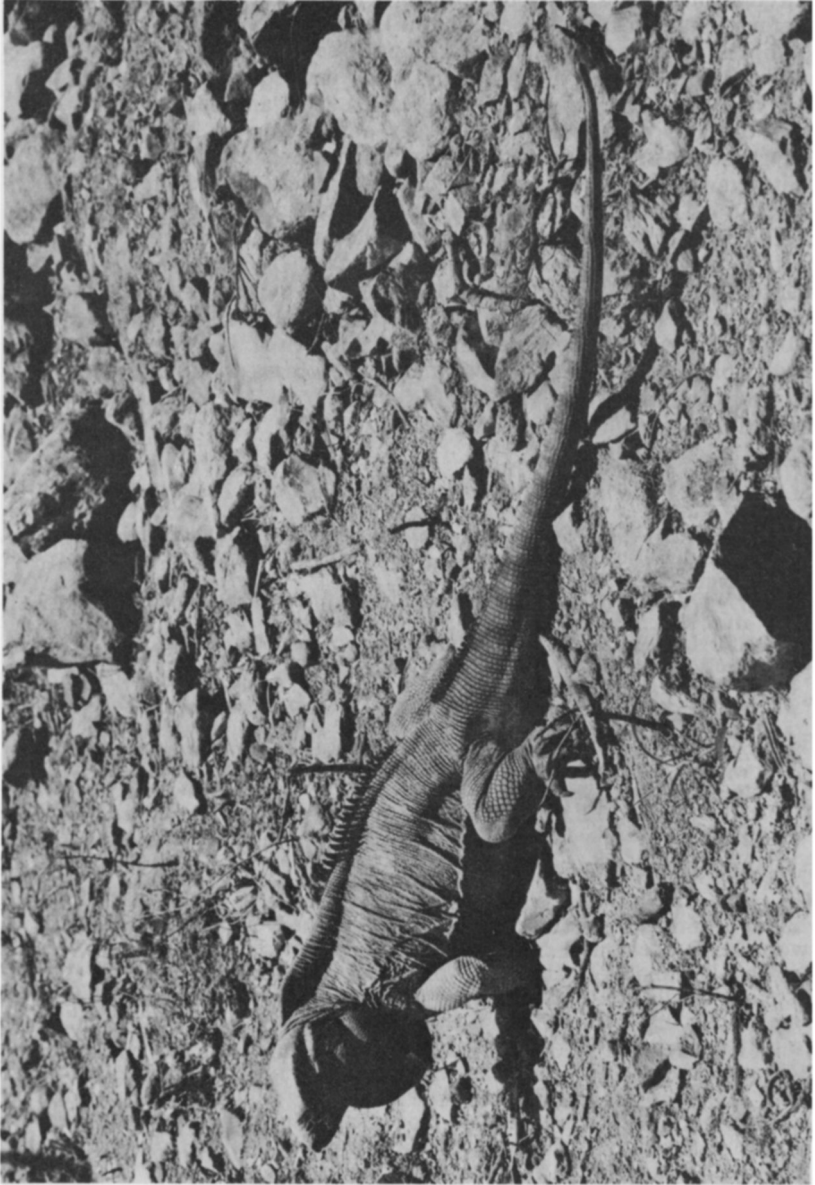
Productivity and Conservation in Northern Circumpolar Lands, edited by W.A. Fuller and P.G. Kevan, the Proceedings of a conference held in in Edmonton in October 1969, gives a wide-ranging survey, with contributions from many specialists, on the dangers that threaten the Arctic and its wildlife.

A THREATENED LIZARD

This large lizard *Cyclura pinguis* occurs only on the small island of Anegada, in the British Virgin Islands, so far as is known, and its survival is threatened by the development of the island as a residential and tourist resort. It is hoped to make a reserve for the lizard, and also to start a new colony on another island.

The Caribbean Research Institute of the College of the Virgin Islands has appealed for funds for a survey to find out its requirements.

William E. Rainey



KNYSNA ELEPHANTS

Two large elephants, part of the most southerly herd in the world in the Knysna forests near the Cape of Good Hope, and numbering only eleven animals. (See the last *Oryx*, page 345). A recent field study showed that the herd, though small, is a viable one and that numbers were being kept down by illegal shooting. The Forestry Department has now agreed to manage the 67,000 acres of forest so as to conserve the herd and its habitat in co-operation with the Wild Life Society of South Africa.

A. R. Roberts

