

ART. XX.—*Observations on Sphenodon punctatum, Fringe-back Lizard (Tuatara).*

By A. REISCHEK, F.L.S.

[Read before the Auckland Institute, 21st September, 1885.]

ON this remarkable lizard I have already written and forwarded a paper to Dr. Julius von Haast, F.R.S., etc., which he read before the Philosophical Institute, Christchurch. (See "Trans. N.Z. Inst.," vol. xiv., 1881.) Since then I have had many further opportunities of observing them on various islands off the coast of New Zealand.

On the Morotiri Islands, I found them common, in burrows by themselves, but oftener with the *Procellaridæ*. On my first visit to Taranga Island, in 1880, I searched the southern and western portions without seeing a single specimen; and I also searched Hauturu Island in the same year, with a similar result. On my second visit to Taranga Island, when searching the rest of that island, at the north-eastern portion, my dog set at a small burrow, and on examining it, I found a fine specimen of *Tuatara*. Afterwards, at the same place, I examined a number of burrows, so small that *Procellaridæ* could not enter. Some had a small chamber, others none; but I never found more than one lizard in each. The entrance measured from 3 inches in diameter, the burrow from 2 feet to 4 feet long. The *Tuataras* must have excavated these burrows, as they were different in form from those in which the birds are found associated with them. These lizards vary in colour from those on the Morotiri Islands, being a more greenish grey, with light spots, as I have a similar specimen here for examination. I think Dr. W. Buller, F.R.S., described it as *Ginteri*. I long since maintained that these lizards burrow, when others expressed doubts about it; but during five years' observation, I found many proofs, which have fully confirmed my first description; even in confinement, in my possession, they burrow; and Professor Thomas has a number for observation, which burrow even in stiff clay.

A remarkable fact in connection with these lizards is, that on all the larger islands they live principally on insectivorous food, such as beetles, grubs, wetas, grasshoppers, flies, etc., which I found on dissecting. They are thus very useful in destroying these vermin, and it is a pity that they are extinct on the mainland. A. Grainger, Esq., had a *Tuatara* nearly a year in his garden, which made her abode under the aviary, coming out at night in search of food. I never found any remains of birds, on dissecting *Tuataras* on the larger islands, living in the same burrow with *Procellaridæ* and their eggs. I think where

insectivorous food is plentiful, which they prefer even in confinement, they will not prey on birds.

On my visit to Karewa Island, at the beginning of this year, with Professors Parker and Thomas, I saw many young birds with their heads off. Professor Thomas got one of these lizards with a bird in its mouth, and I followed one which had a bird of considerable size in its mouth; it tried to escape in a burrow, but got stuck at the entrance. They catch the bird by its head, and then chew until it is devoured. My opinion is that, as this island is so small, and these lizards so numerous, this is the reason they prey upon birds. They live there along with *Puffinus brevicaudus*, on which, though it is a digression, you will allow me to make a few remarks. This species of Puffin is numerous on Karewa during the breeding season. In the daytime only single specimens, and their young, remain on the island, but in the evening we saw flocks of thousands of these birds circling round the camp. They seemed rather surprised to find a solitary habitation occupied. After sunset they settled on the ground, in some places so thickly that one could hardly walk without treading on them; instead of going out of the way, they defended themselves by biting, they even came into our tent, and we were obliged to throw them out and shut it up; then they burrowed in underneath. When preparing tea, one gentleman had to watch and keep them off the fire, and, when frying fish, they actually walked through the frying-pan. The variety of their vocal powers was most amusing, and when they joined in chorus it was deafening. One night I went into the bush with a light for the purpose of observation: a whole flock of these birds flew at me and knocked the light out of my hand; I did not allow my dog to touch them; they went on his back, walked over him, and sat alongside of him. These birds are very vicious when molested. Leaving Karewa and coming back to Hauturu Island, on my second and seasonal researches, I examined the whole island; on the eastern part I found a few *Tuataras*, but they are very rare. These lizards differ from the common *Tuataras*, in colour, form, scales, and touch of the skin.

The colour of the common *Tuataras* (*Sphenodon punctatum*) is: top of head, upper part, and sides, from dark to greenish grey, spotted with greyish white; throat, slate grey; abdomen, greyish white; the claws are tinged with yellowish green. The crest on the nape and back is very prominent, the spines are softer and flat in form, the scales and skin are coarse to the touch. The size is according to the age, from 3 inches to 2 feet long; the head 2.5 inches in length, 1.25 in width; the front leg, 3.5 to the tip of toe; hind leg, 4.5. The brick-red variety, which I found on Hauturu Island: colour, top of the head, back, and sides, light brick-red with brown bars; an elongated brown band on each side of the neck; and over the chest, throat, sides of the face,

light grey, with seven rows of light dots; abdomen, fawn colour; a yellowish green ring round the eyes. The crest on the nape and back is small, the spines are small and round, the scales on the skin fine and soft to the touch. Measurement of adult: 1 foot 5 inches, total length; length of head, 2·5; width, 1 inch; front leg to the tip of toe, 3 inches; hind leg the same. It may be that this variety does not deserve to be ranked as a distinct species from the common *Tuatara*, but at the same time I think it a very well-marked local form, which has probably arisen during long isolation on Hauturu Island. In many respects this variety seems most distinct from the common *Tuatara*, the crest both on the nape and the back are much finer, the separate spines are round, not gently flattened as on the common species. The form of the head is more of an oval shape, the scales, including those at the sides of the body, are smaller, and softer to the touch, the colour markings are decidedly different from the common *Tuatara*. The difference in colour might be due to the lighter character of the soil on which they live, as I have often found with animals and birds.

Here I have a series of specimens for observation, which Professor Thomas, F.L.S., T. Cheeseman, F.L.S., and I, have examined carefully. These gentlemen agree with me in the general tenor of these remarks.

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ART. XXI.—*Notes on the Habits of the Polecat, Ferret, Mongoose, Stoat, and Weasel.* By A. REISCHEK, F.L.S.

[Read before the Auckland Institute, 30th November, 1885.]

PUTORIUS PUTORIUS.—Polecat.

This animal is common in Europe, except North Russia and Lapland, and is found in Siberia, Kamtschatka, and Tartary. It frequents mountains, forests, plains, and settlements; and makes a comfortable nest of grass, moss, leaves, &c., in hollow trees, or under the roots; between rocks, thick scrub, or in burrows, which they excavate if unable to find any already available. In severe winters they come near settlements, where they take up their abode in hay or straw stacks, stone walls, or some unmolested places about farm-houses, where they make great havoc amongst the poultry and eggs; and in Austria a reward is offered for their destruction. They destroy all the small animals and birds which they are able to overpower, and are even dangerous to children.

At a place in Austria where they are numerous, on one occasion when I was out hunting, I disturbed a hiding-place of these animals amongst the rocks, from which four came out,