

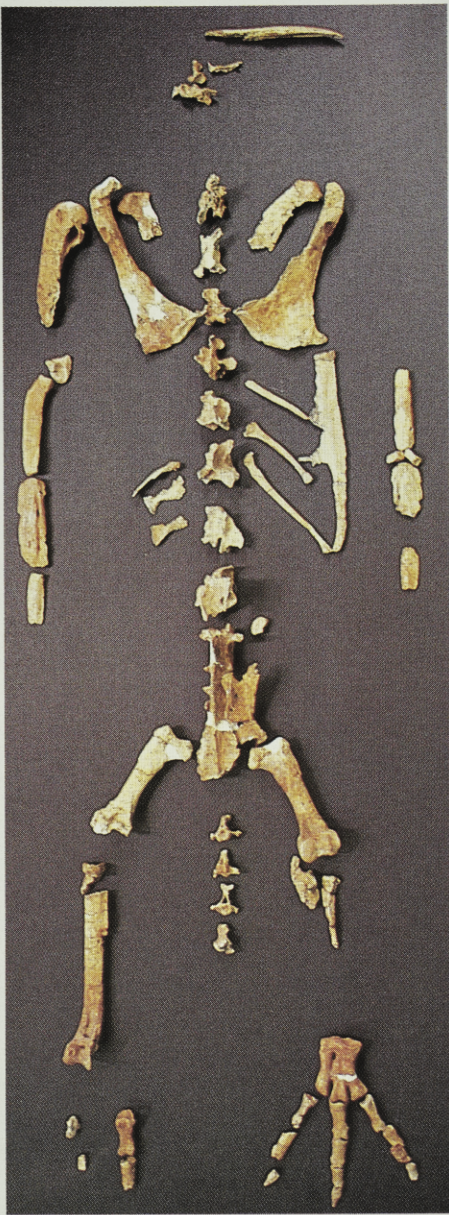
THE FOSSIL RECORD world-wide contains many more penguins than exist today – over 30 species in about 20 genera. All of them are in the southern hemisphere, as are today’s complement of 18 species in six genera.

New Zealand has contributed 14 extinct species plus three or four from Quaternary deposits – younger than two million years – that are closely related to living species. Up to eight more species await description.

Dr Fordyce thinks that New Zealand has the most diverse fossil penguin fauna of any landmass, just as it has more living penguins (seven species breeding) than anywhere else.

But he won’t go as far to say New Zealand is the ancestral homeland of penguins. The fossil record does not extend back far enough, in his view, nor is it complete enough, to determine a centre of origin, although it is almost certain to have been in the cool-temperate latitudes of the south-west Pacific. Fossil penguins have been found in South America, South Africa, Australia, New Zealand and Antarctica.

Seymour Island off the Antarctic Peninsula, at 64 degrees south, and a spot near Lima in Peru, at 14 degrees south, mark the latitudinal range for penguin fossils. As for age, the oldest are from New Zealand and Australia dating back about 40–45 million years to the mid to late Eocene.



COURTESY GEOLOGY DEPARTMENT UNIVERSITY OF OTAGO. NEVILLE PEAT

*Skeleton of the fossil penguin found by Ewan Fordyce at Waihao in 1977. It is the most complete fossil penguin found to date. Even delicate elements such as the beak and sternum have been partly preserved.*

Dr Fordyce claims that the early evolution of penguins was “rather rapid”. He doubts whether ancestral penguins older than 55 to 65 million years ago will ever be found.

There is a gap of some 10 to 15 million years between the oldest penguin fossils and a “proto-penguin” that belongs in the late Palaeocene or early Eocene, 55 to 62 million years ago.

The proto-penguin was found in New Zealand. Its partial skeleton was discovered in greensand rocks near Waipara, North Canterbury in 1982. It is more primitive than any described penguin, possessing a mix of features intermediate between flying birds and the penguins. Fordyce concludes from the solid, non-pneumatic nature of some of the bones, that the Waipara bird was a non-flying, wing-propelled diver.

“Bones of this bird, for example, wing bones, differ in proportion from those of modern penguins, so it is difficult to estimate size”, he says. “A comparison of the fossil with a range of other penguin species suggests that its size was between that of the yellow-eyed penguin and the king penguin, but the bones of the fossil probably represent a bird more slender than modern penguins.”

