

## SHORT NOTE

### A fossil bone of the Rifleman (*Acanthisitta chloris*) from Cape Reinga

At the time of European settlement, the Rifleman (*Acanthisitta chloris*) was already scarce in Northland. Buller (1873) mentioned only the "middle and southern portions of the North Island" as part of its northern range, although it was recorded at the Bay of Islands in 1835 (Oliver 1955). Currently, Riflemen are believed to be absent from the mainland north of Auckland (Turbott 1990) except for a relict population recently discovered at Warawara Forest north of Hokianga Harbour (Pierce 1994). They occur on Great and Little Barrier Islands (Turbott 1990).

During a survey of fossil landsnail shells in 1995 at Te Werahi Beach, Cape Reinga, Dr F.J. Brook collected small bones and bone fragments from a muddy gravelly palaeosol unit 15 cm thick. The site (N.Z. Fossil Record File No. M02/f85; grid reference M02 809 483) is on a coastal ridge c. 60 m above sea-level. The fossiliferous palaeosol directly overlies weathered basaltic rock, and is in turn overlain by unconsolidated dune sand. Carbon dating of landsnail shells (*Placostylus*) from the site gave a radiocarbon age of  $2470 \pm 190$  BP (reference number Wk-3683) and the fossil landsnail fauna of 14 species at the site shows that it was then under coastal forest or shrubland (F.J. Brook, pers. comm.).

The sample at M02/f85 included a whole but exceptionally small avian left femur (Auckland Museum B7498; Fig. 1a) which is the subject of this note.

#### Identification

In shape the fossil bone agrees closely with a femur of the Rifleman (Fig. 1b). It differs significantly in shape from the femora of Grey Warbler (*Gerygone igata*; Fig. 1c) and Fantail (*Rhipidura fuliginosa*; Fig. 1d). Comparing the fossil and Rifleman bones (Figs. 1a, 1b) with the others (Figs. 1c, 1d) in ventral view, the following are noticed. The shaft of the Rifleman femur is less straight. The femoral head at the proximal end, and internal (medial) condyle at the distal end, are more medially inflected, making the Rifleman femur more C-shaped. The outline between the trochanter and the head is straighter and flatter in the Rifleman. There is a prominence on the internal condyle of the Grey Warbler and Fantail femora which the Rifleman femur lacks. I conclude that the fossil bone is a Rifleman femur.

This is the first Rifleman bone reported from a dune site. In the North Island, fossil Rifleman bones have been recorded only from Waitomo and Hawkes Bay caves (Turbott 1990). In the South Island, they have been found at numerous cave sites: north-west Nelson (Worthy 1993, Worthy & Holdaway 1994), Punakaiki (Worthy & Holdaway 1993) and north Canterbury (Worthy & Holdaway 1995). The lack of fossil Rifleman bones from dune sites presumably has more to do with their small size and fragility than with any actual rarity.

#### Size

The fossil is fully ossified at the ends, showing no sign of immaturity, but is only 8.54 mm long. The contemporary Rifleman femur (Fig. 1b, unsexed), from near Hastings, is 9.44 mm long and two Rifleman femora measured by Millener

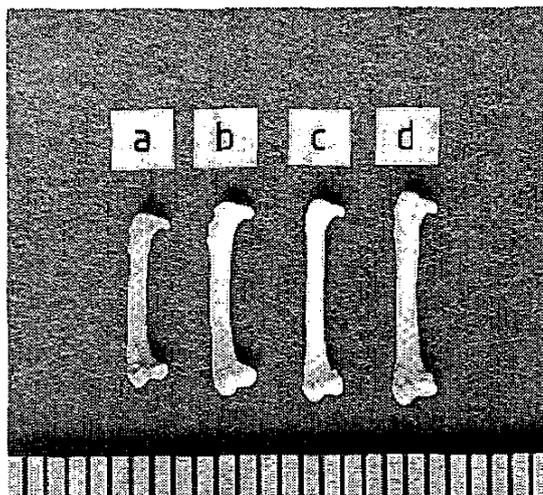


FIGURE 1 - (a) Fossil femur from Cape Reinga (AIM B7498). Left femora of Rifleman (b, AIM B1633), Grey Warbler (c, AIM B1648) and Fantail (d, AIM B1558). Scale marked in 1 mm graduations.

(1988) averaged 9.12 mm long. Female Rifleman are heavier than males and there is some tendency for linear measurements of females to be greater (Robertson et al. 1983). The small Cape Reinga fossil may have belonged to a male. It is one of the smallest bird femora recorded in New Zealand.

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