Notornis, 2006, Vol. 53: 381-383
0029-4470 © The Ornithological Society of New Zealand, Inc.

SHORT NOTE

A high-altitude bar-tailed godwit (*Limosa lapponica*) on Mt Ruapehu, North Island, New Zealand

PHIL F. BATTLEY
Department of Mathematics and Statistics, University of Otago, P.O. Box 56, Dunedin, New Zealand
philbattley@quicksilver.net.nz

CHRYS HORN
Collaborative Learning for Environmental Management, Landcare Research, P.O. Box 69, Lincoln, New Zealand
Hornc@LandcareResearch.co.nz

On 11 Jan 2006 while climbing Mt Ruapehu (an active volcano, and at 2797 m the highest peak in the North Island, New Zealand), CH discovered the frozen carcase of an unfamiliar bird at an altitude of 2610 m (NZ Metric Grid reference 2731960E, 6211385N). Digital images of the bird (Fig. 1) were sent to PFB, who identified it as a bar-tailed godwit (*Limosa lapponica*). The wear on the central tail, primary and some tertial feathers and the presence of breeding plumage indicated that the bird was an adult and the long bill relative to the head length showed that it was a female. The upperparts were in post-breeding moult, with a mixture of retained

Received 26 April 2006; accepted 30 September 2006

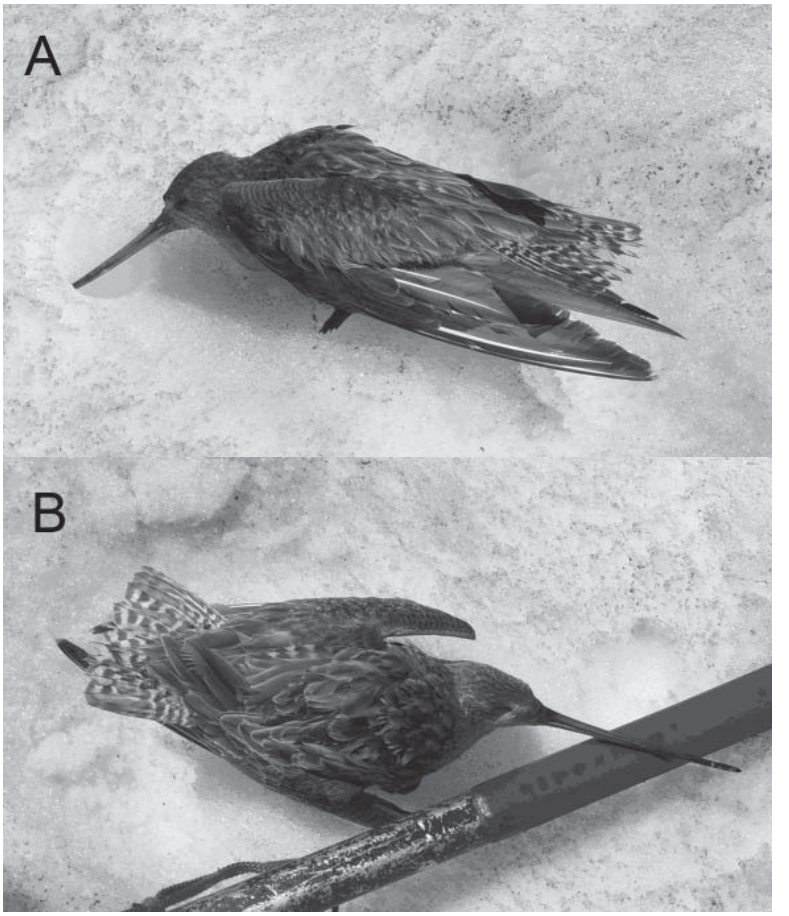

Fig. 1 Carcase of a bar-tailed godwit (*Limosa lapponica*), Mt Ruapehu, central North Island, New Zealand. A, carcase *in situ* showing 5 visible old primaries; B, carcase propped up on ice axe, showing worn central tail feathers, breeding-plumage scapulars, and long bill. Photo: Chrys Horn.

breeding plumage (particularly 'notched' scapulars) and fresh non-breeding plumage. This pattern is typical of bar-tailed godwits newly-arrived from the breeding area, as they complete much of their pre-basic contour feather moult on the staging grounds in Alaska (McCaffery & Gill 2001). The forehead had some faint orangey staining, which is picked up by godwits foraging in iron-rich mud in Alaska (see Kennard 1918) and which is often visible in birds soon after their arrival in New Zealand (PFB, unpubl. data). At least 5 old primaries were visible in the left wing.

Bar-tailed godwits are thought to migrate direct to New Zealand from Alaska (Gill *et al*. 2005); they typically arrive in New Zealand from the 3rd week of Sep to early Oct. They start wing moult soon after arrival, and by mid-late Oct most adults have moulted their inner primaries and have only 4 or 5 old primaries remaining (PFB and New Zealand Wader Study Group, unpubl. data). The Mt Ruapehu bird had therefore died before mid-October and is likely to have been still on migration southwards.

Wading birds such as godwits are known to migrate at high altitudes. Waders migrating eastwards in eastern Siberia have been recorded by radar at an average altitude of 1222 m (maximum 4106 m, although only 16% were above 2000 m: Alerstam & Gudmundsson 1999). Bar-tailed godwits migrating over southern Sweden did so at an average altitude of 2223 m (maximum 2806 m: Green 2004), and the predicted optimal altitude based on water balance arguments for the same population flying from Africa to Europe was 3000 m (Landys *et al*. 2000). The altitude of the Mt Ruapehu godwit (2610 m) shows that even once they have reached New Zealand, some godwits continue to fly at a considerable altitude. This bird was presumably attempting an overland crossing above the central high country of the North island, or it had drifted eastwards when heading towards the South Island. The migration routes and flight altitudes of godwits within New Zealand are poorly known so it is difficult to know whether or not this record is evidence for a regular movement.

LITERATURE CITED

Alerstam, T.; Gudmundsson, G.A. 1999. Bird orientation at high latitudes: flight routes between Siberia and North America across the Arctic Ocean. *Proceedings of the Royal Society of London, B 266*: 2499-2505

Gill, R.E., Jr; Piersma, T.; Hufford, G.; Servranckx, R.; Riegen, A. 2004. Crossing the ultimate ecological barrier: evidence for an 11 000-km-long non-stop flight from Alaska to New Zealand and eastern Australia by bar-tailed godwits. *Condor 107*: 1–20.

Green, M. 2004. Flying with the wind - spring migration of arctic breeding waders and geese over south Sweden. *Ardea 92*: 145-160.

Kennard, F.H. 1918. Ferruginous stains on waterfowl. *Auk 35*: 123-132.

Landys, M.M.; Piersma, T.; Visser, G.H.; Jukema, J.; Wijker, A. 2000.Water balance during real and simulated long-distance migratory flight in the bar-tailed godwit. *Condor 102*: 645-652.

McCaffery, B; Gill, R.E., Jr. 2001. Bar-tailed godwit (*Limosa lapponica*). *In* Poole, A.; Gill, F. (*ed*.). The Birds of North America, no. 581. Philadelphia, The Birds of North America, Inc.

Keywords bar-tailed godwit; *Limosa lapponica*; migration; New Zealand; flight altitude