

## The Longest Non-stop Migratory Flight in the World

A female Bar-tailed Godwit has just been recorded making the longest non-stop flight in the world. E7, as she is known from her leg flag, was fitted with a satellite transmitter at Miranda in New Zealand's Firth of Thames on 6 February this year. She then spent time around the mouth of the Piako River until 17 March when she left at 8 am and flew non-stop to Yalu Jiang, China, on the shores of the Yellow Sea near the North Korean border. She arrived at about 5 pm local time (9pm New Zealand time) on 24 March, after covering a distance of 10,219 km in 7 days 13 hours or 181 hours, giving an average of 56.5 km per hour (kph).

She then spent 5 weeks feeding and building up her fat reserves before leaving Yalu Jiang at about 6pm on 1 May, heading east. Flying well south of the Aleutian Islands and with wind assistance she then headed northeast, landing at Nelson Lagoon on the Alaska Peninsula on 5 May, a distance of 6459 km. Over the next 10 days she landed at Port Heiden, also on the Peninsula, then flew north to Chefornak on the Yukon-Kuskokwin Delta (12 May), arriving at the breeding grounds at Manokinak on 15 May. This was a total distance traveled of 17,456 km from Piako in New Zealand.

E7 stayed on the breeding grounds until 18 July when she flew 155 km to Cape Avinol on the southeast coast of the Yukon-Kuskokwin Delta. The Kuskokwin Shoals here are a major godwit feeding site in preparation for the long migration south.

She left the Kuskokwin Shoals around 10 pm local time on 29 August (6am on 30 August New Zealand time) flying south over the Peninsula and out over the Pacific. Missing Hawaii, E7 turned southwest, passed close to Fiji and the North Cape of New Zealand. She then headed south to Miranda, arriving late in the evening of 7 September, after about 8 days 12 hours (204 hours) of continuous flying and at least 11,570 km non-stop. All up E7 flew a minimum distance of 29,181 km in about 500 hours.

Dr Phil Battley of Massey University fitted satellite transmitters to sixteen godwits last summer. Eight males had backpack tracking devices attached but all of these have failed. Eight other birds had satellite transmitter surgically implanted. Three of these have stopped working. Another female, Y3, spent the austral winter near Farewell Spit in New Zealand and did not migrate. Four other birds were still in Alaska on 10 September.

Ten years ago it was thought that 5000-6000 km was the maximum distance that could be achieved in a non-stop flight. E7 has just doubled the distance. She could have shortened her journey by 500 km if she had moved south down to the Alaskan Peninsula for a rest before migration. The fact that she did not do this shows that the long journey is not a problem for the bird.

I asked Phil if the satellite transmitters recorded altitude. His response was "The satellites do not tell us anything about flight altitude. Radar work, however, shows that shorebirds departing on long-distance migration travel at high altitudes (1-5 km). It would be energetically unprofitable to drop and reascend just for some sleep. In any event, the travel speeds the birds achieve are consistent throughout the flight indicating that they are not taking breaks in there. I don't think anyone would seriously think that shorebirds are floating for a sleep. They aren't built for floating for long periods, and while there are cases of birds settling on water during fog (perhaps unintentionally) there are also cases of birds drowning in fog while doing so. Birds can use unihemispheric sleep so I'm sure 7 days without stopping is not quite as bad as 7 days without sleep for us. :-). To confirm the altitude we simply need to get dataloggers with altitude sensors on them, and then get those units back again..."

Next year Phil hopes to implant satellite tags into larger male godwits to see if the males follow the same route as the females. In addition he is planning a project to do similar work with the

race of Bar-tailed Godwit that winters in northwest Australia in order to compare the migration patterns of the two races.

The satellite track of the godwits can be viewed online at:

<http://alaska.usgs.gov/science/biology/shorebirds/barg-updates.html>