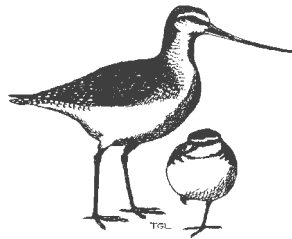


The Journey of E7 and the other satellite-tracked godwits in 2007 was well documented in many places. This file brings together some of the articles published in MNT News.

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Tracking Godwits

For many years there has been a discussion occurring around the coffee table at the Shorebird Centre – is it really possible for the godwits to fly direct from Alaska to New Zealand without stopping? The pro side of the debate is what people have wanted to believe, in part because if it is true it is very cool, but there is always this nagging doubt – could they really?

Over the years the evidence for the direct flight has accumulated – physiological studies, locations of birds during migration – a lot of the details were summarised in Issue XX of MNT News. But hard evidence has been limited, as trying to study birds on migration when you don't think they go anywhere near land is a daunting task. But technology is changing that, and it's happening fast.

In 2005 Miranda regular Phil Battley was part of a group that aimed to put radio transmitters on Bar-tailed Godwits. The idea was to record their signals before they left Alaska and again on their arrival in New Zealand so that the length of time they took to migrate could be worked out. For a number of reasons, including the birds' determination not to be caught, the project failed. However shorebird scientists are nothing if not persistent!

2005 also saw a technology advance, with satellite tags being implanted into a small number of breeding godwits in Alaska in an attempt to reveal the routes taken by the birds when they migrated. Unfortunately the transmitters failed, though the birds did not – some were subsequently seen alive in New Zealand

having made the journey successfully, even with the transmitter. Knowing that the birds could handle the tags, 2006 saw another attempt to track the migration. Things started fabulously, with some tags working fine as the birds winged their way across the Pacific, past Fiji, and then... Alas, a battery problem caused the transmitters to fail. But at least it demonstrated that godwits *try* to cross the Pacific! Later that season those birds were seen on Farewell Spit, proving that they too made the trip OK.

In February 2007 the Wrybill room at the Shorebird Centre was transformed into an operating theatre in which four female godwits had satellite transmitters implanted into their belly cavities and four male godwits got solar-powered backpack units. A further eight godwits at Farewell Spit were similarly set up with transmitters. And then the wait began. Obviously this is not to track them as they come down the Pacific; rather these godwits were tasked with mapping the migration path north, from New Zealand, through Asia and into Alaska.

And this time it worked! With the glitches in the transmitters ironed out by the developers, Microwave Telemetry Inc, Bob Gill (now nearly a Miranda regular himself) from the US Geological Survey, Nils Warnock from PRBO Conservation Science, Phil Battley from Massey University and a suite of capable co-researchers from Alaska and New Zealand, have managed to track the movement of godwits using satellite technology. As the time this article was written the birds have –

- Spent some time in New Zealand, showing their daily movements around the Firth and Golden Bay; two backpack transmitters failed, probably having fallen off,
- Headed off over the Pacific. The first one to go left on March 17th from Golden Bay and by the 22nd ten birds were flying north, and by the 27th at

least three, possibly six birds were in the Yellow Sea. One of these birds ended up in South Korea, one in the western Yellow Sea in China, and E7, from Miranda, made a non-stop flight direct to Yalu Jiang. Proving the value of the sister-site relationship it was followed shortly after by another that had originally stopped in South Korea.

- Four males are known or thought to have stopped en route. One visited Papua New Guinea before heading back to Australia, another stopped near New Ireland before also visiting Queensland, one probably went to the Philippines with the final one spent a month holidaying in Micronesia before continuing on to Okinawa, Japan, and up to the Yellow Sea. A single female decided to spend the winter on Farewell Spit.

Things got fairly quiet for a while, birds feeding on the mudflats getting ready for the next big hop, which began on May 3rd when the first bird left Yalu Jiang on a course for Alaska. At this is written two birds have made it to the Alaska Peninsula and Yukon Delta region, and two more are in the air. As long as the batteries hold out the birds may be able to be tracked right to their breeding grounds.

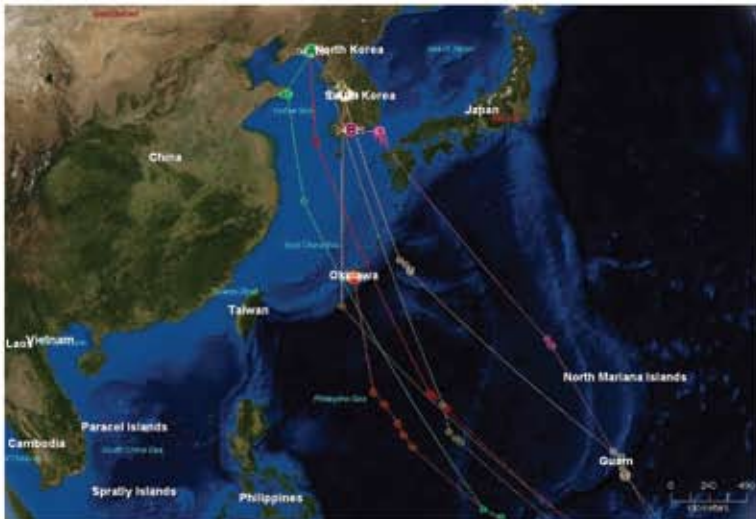
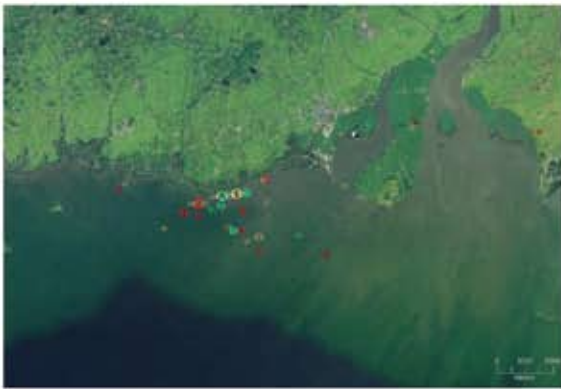
This research programme is not focused just on New Zealand and Bar-tailed Godwit, however. The NZ component is part of a larger programme, the Pacific Shorebird Migration Project <http://www.prbo.org/cms/index.php?mid=424>, funded by the Packard Foundation. Transmitters have been or will be put on several species, including Hudsonian Godwits, Bristle-thighed Curlew and Long-billed Curlew, to look at their migratory routes and stopover points, and use this information to identify conservation threats and improve public awareness.

So if you want to come to the Shorebird Centre, sit around the coffee table and argue over whether the godwits can really do it, visit soon, if you leave it too long we might know the answer! If you can't make it out of the house, fire the computer up and go to www.werc.usgs.gov/sattrack/shorebirds/ to see the birds' progress.

Gillian Vaughan

E7, showing her transmitter and the way. Photo K Woodley





Starting in New Zealand, the birds headed up over the Pacific, most heading into the Yellow Sea. From there they have headed off into Alaska. The world maps show the tracks, the birds are not tracked continuously, so the lines simply connect up the points. At the top and bottom are close ups of the First of Thames and Yalu Jiang, each bird is a different colour.

Maps prepared by USGS. Thanks to Lee Tibbitts for keeping us all in touch.



Bar-tailed Godwit – An Unfolding Migration Story

Adrian Riegen

In the last *Miranda News* (*Issue 65*) the cat was let out of the bag so to speak with news and maps showing the routes taken by Bar-tailed Godwits as they flew north to the breeding ground from New Zealand fitted with the latest in satellite transmitters technology. The migration was in full swing at the time of going to print with a few birds having just made it to Alaska. Several more birds reached the arctic and there has now been time to reflect on the vast amount of data received.

Back in the late 1980s information on godwit migration was very scarce and it wasn't until May 1991 that the first New Zealand banded Bar-tailed Godwit was recovered overseas; although the news took almost a year to filter back to us that a hunter on Bering Island east of Russia's Kamchatka Peninsula had shot one of our birds for sport. From this we surmised that the bird had travelled to Asia and was heading for Alaska to breed.

On 1 April 1992 a white flagged godwit was sighted in southern Japan, just four months after the first godwits were flagged on the Kaipara Harbour. The next flag sighting from Asia was another in Japan on 17 May 1995 followed by a banded bird found dead in northern Japan on 24 May 1996. The first white flag sightings from South Korea were in April 1998 and the first white flag sighting from China was not until May 1999 when Mark Barter visited Yalu Jiang for the first time.

This slow trickle of recoveries and sightings enabled us to gain a little insight into the godwit migration. To date over 2,200 Bar-tailed Godwits have been banded in the Auckland region but only four have been recovered on northward migration. In addition there have been 31 white flag sightings from Japan, 47 from South Korea and 69 from China, plus numerous colour banded birds sighted, all showing the importance of the Yellow Sea to the Bar-tailed Godwit during northward migration. There are no records from elsewhere in Asia on northward migration.

Copied from MNT News

Piecing together the migration story was a slow process that required plenty of imagination and speculation. Bob Gill tried to answer the question of which way the birds migrated southwards from Alaska and, after years of research, found no direct evidence but plenty of circumstantial evidence for a non-stop flight across the Pacific. His subsequent paper 'Crossing the Ultimate Ecological Barrier' (*Miranda News Issue 58*) was also greeted sceptically by many but not those of us who have been studying the godwit migration for many years.

The advent of satellite transmitters small enough for godwits to carry has revolutionised migration studies and turned the trickle of information into a deluge. They have also silenced the many critics who did not believe waders like godwits were capable of such long non-stop flights. Watching last September as the few birds with working transmitters were tracked due south from Alaska and out over the vast landless Pacific was no surprise to us, just confirmation that the previous research was correct. Nevertheless it was an awe-inspiring sight as they headed for that pinpoint over the horizon that was New Zealand.

All of last years transmitters failed before they reached New Zealand and until some of the birds were seen alive and well the story was kept fairly quiet. This year though the technology has worked considerably better

and once the first bird reached Asia the news was out and Phil Battley did a great job spreading the word to the world's media. The Times of London devoted its whole front page of the World section to the story.

From the 16 transmitters fitted, seven were still transmitting when they reached the breeding grounds. Four of these are highlighted here. Note: distances are minimum only and dates may vary slightly.

E7 - Female

She was heralded as 'the greatest', not only for completing the longest non-stop flight ever recorded for a land bird, of at least 10,219km, but also because she flew non-stop from Miranda to Yalu Jiang, thus linking the sister sites in a way we could only have dreamt about a year ago. So what happened to her after the 7.5 day flight to Yalu Jiang?

She stayed there for 38 days refueling, then departed on 1 May and flew eastwards into the Pacific, well south of the Aleutian Islands, before heading northeast to briefly land at

The journey had taken 60 days of which 14.5 days or about 350 hours were spent flying.

Nelson Lagoon on the Alaska Peninsula. She arrived there on 5 May having travelled 6,460km from Yalu Jiang. The track she took, although much longer than the great circle route, had more favourable winds.

From Nelson Lagoon E7 moved on to Port Heiden, also on the Peninsula, before turning north to the Yukon-Kuskokwim Delta (YKD) where she arrived near Cheforak on 12 May. She quickly moved on to Manokinak, her final destination, arriving there on 15 May, having travelled a minimum of 17,460km from Miranda. The journey had taken 60 days of which 14.5 days or about 350 hours were spent flying. The distance flown from Yalu Jiang to Manokinak was at least 7,237km. The great circle (shortest) route from Yalu Jiang to Manokinak is 5,230km.

She arrived at Manokinak the same day David Melville and I arrived on the YKD and was only 30 km away from us but due to a lack of transport it was impossible for us to get there to look for her. She appears to have nested in the Manokinak area as she was present for 63 days. On 18 July she left the breeding grounds and moved to Cape Avinof, 155km to the south.

Cape Avinof is the major staging site for godwits before they depart for New Zealand and eastern Australia so she is likely to stay there until September when she will once again head south to Miranda, we hope! Unfortunately the battery powering her transmitter is not expected to last that long but we have our fingers crossed.

E8 – Female

Another female from Miranda E8 left on 1 April, two weeks later than E7. Ironically the last satellite plot before she left had her poolside at the Miranda Hot Pools, perhaps a little R&R before departing (fixes are not entirely accurate)! She flew non-stop for 8.5 days covering at least 9,770km averaging 48kph and landed on the west coast of South Korea at Asan Bay. The great circle route from Miranda to Asan Bay is 9,610km, only 160km less. The navigational skill of these birds defies belief.

She stayed in Asan Bay for 45 days

until 24 May then departed eastward. She flew across Korea and Japan before turning northeast toward the YKD, where she was battling strong headwinds, which reduced her land speed to 30kph. With less than 450km to go she turned round and flew at least 1300km westward to land on the Kamchatka Peninsula in Russia. On this leg she was travelling downwind at 70kph. This flight covered at least 8,160km and lasted a little over 6 days. Whether this change of course was due to the transmitter or was simply a survival strategy for when the going gets tough is hard to say.

She stayed in Russia for 9 days and then set off once more for Alaska, arriving on 10 June on the north coast of the YKD. Another 1,530km, making a total of 19,460km flown on migration from Miranda. By way of contrast the great circle route from Miranda to London is only 18,355km. She arrived on the YKD too late to breed and after 10 days on the North Yukon Delta she flew 400km south to join other birds at Cape Avinof where she was still present on 23 July.

Z0 – Female

A South Island bird had a transmitter implanted on 2 February near Farewell Spit and she stayed there until 19 March. She departed on a non-stop flight to South Korea, which ended on a mudflat within sight of the Incheon International Airport after 7.7 days and 10,170km. She was there for 7 days and then flew the 335km to Yalu Jiang. After a further 28 days refuelling she left on 2 May for Alaska arriving in Bristol Bay on 6 May. Bar-tailed Godwits were not known to breed this far south and east and so Bob Gill flew out there from Anchorage to find her, which he did. She appears to have bred there although after 48 days she also headed for Cape Avinof, possibly leaving the male with the chicks.

Z5 – Male

Z5 was the only male to make it to the breeding grounds with his trans-

mitter still working. His migration strategy was very different from the others and was quite unexpected.

While the females with implanted transmitters seemed to have coped very well with their additional load the males appear to have had problems with their backpack type transmitters. Several had fallen off quite early and others had behaved in odd ways.

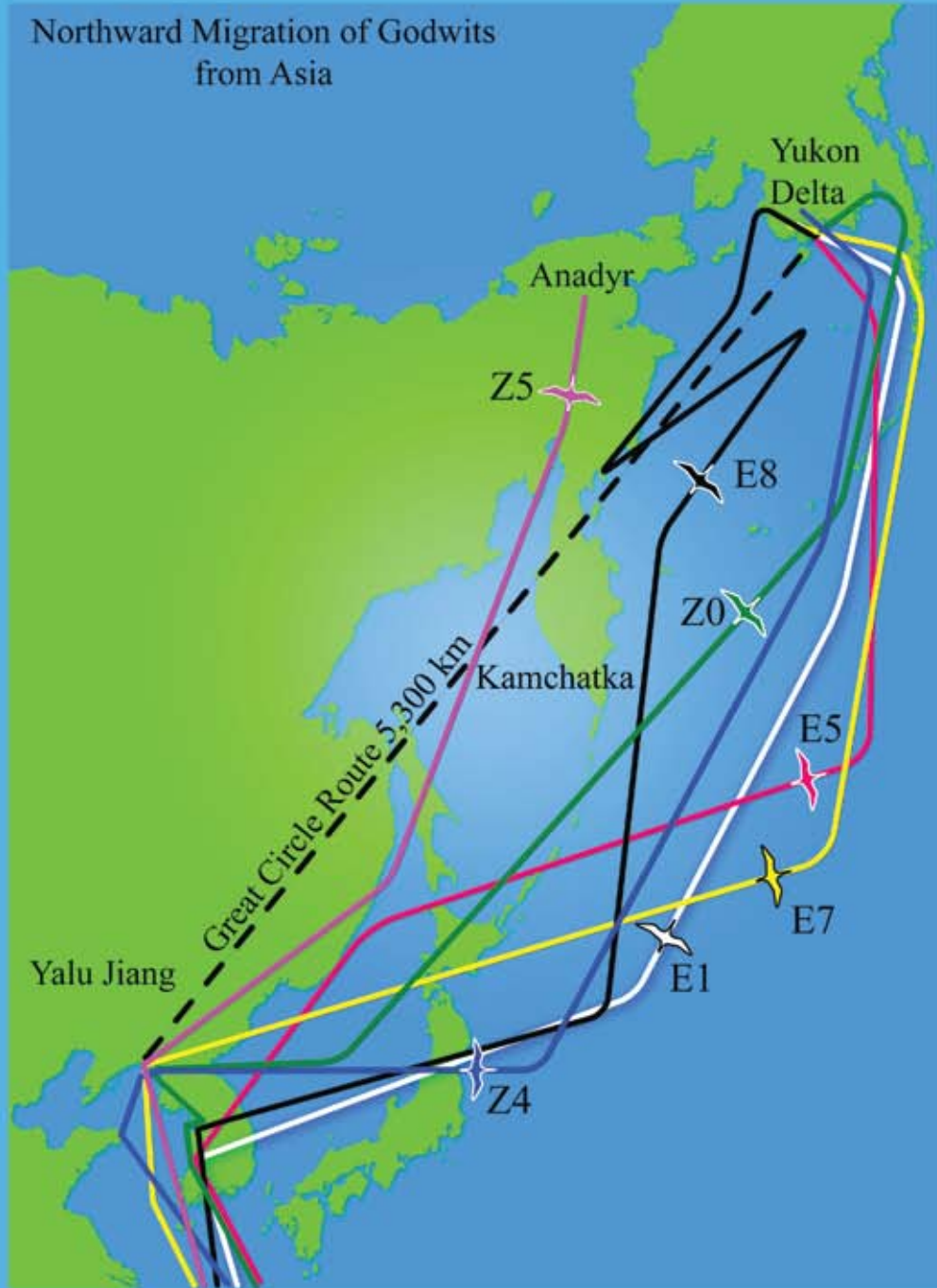
Z5 left Farewell Spit on 17 March and flew a straight course up the Pacific but stopped short of Asia, choosing to rest on the small island of Yap. Google Earth could not have come at a better time, as it enabled us to zoom in and have a look at Yap to check whether it has any suitable habitat for waders. It seemed it does and efforts were made to find a birdwatcher living on the island or someone who could visit, including trying to contact a birding cruise ship heading that way from New Zealand. Alas no one got to see Z5 on Yap and after 12 days there he flew on to Okinawa where a contact of Bob Gill's was able to find the bird and see that it looked fine.

Just 4 days later he was off again flying to Yalu Jiang. The journey from Golden Bay had taken 27 days. After 19 days at Yalu Jiang he flew north not to Alaska but to Anadyr in the Russian Far East. Pavel Tomkovich heard the news and suggested that where he had landed was a known breeding area for Bar-tailed Godwits but which subspecies breeds there is not so clear. It was believed that all the godwits fitted with transmitters in New Zealand were adults of the *baueri* subspecies, all of which are thought to nest in Alaska. Little is known about the godwits breeding in the Anadyr region and there is some thought they may be another subspe-

Z5 travelled the shortest distance for any of the birds, a mere 15,150 km.

cies *anadyrensis* but more work is needed to fully understand this. Z5 travelled the shortest distance for

Northward Migration of Godwits from Asia



From top E7 at Manokinak on the YKD, Z5 on Yap, E8 at the Miranda hot pools, images prepared by USGS. Left Z0 in Alaska, Photo Bob Gill, left top the migration routes used from the Yellow Sea to Alaska.

any of the birds, a mere 15,150 km.

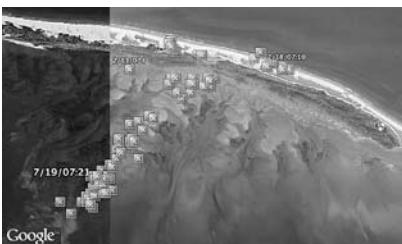
It would appear that Z5 has bred successfully as on 23 July he was still within a 10 km radius of where he first arrived. As his transmitter is solar powered it should keep transmitting for much longer than the implanted ones; we may well see him make a southward migration.

Just these four birds have taught us far more about the northward migration of Bar-tailed Godwits from New Zealand than has been learnt in the last 100 years or so. Even those of us involved in migration studies over the past 20 years are in awe of these remarkable birds and this will only strengthen our resolve to protect E7, E8, Z0, Z5 and all other Bar-tailed Godwits.

Y3 – Female

There is one other godwit still transmitting, Y3, who has quite a different idea of what is expected. She has stayed at Farewell Spit the whole time and although she did not migrate this year she has given us valuable information on how site faithful godwits can be. For the past 155 days she has been on the central part of Farewell Spit feeding on the exposed sand flats at low tide and retreating to the nearby dunes at high tide.

We have been very privileged to be involved in these studies undertaken by USGS with funding from the Packard Foundation and I would like to thank Bob Gill and Lee Tibbits in particular for keeping us so well informed and answering all our questions.



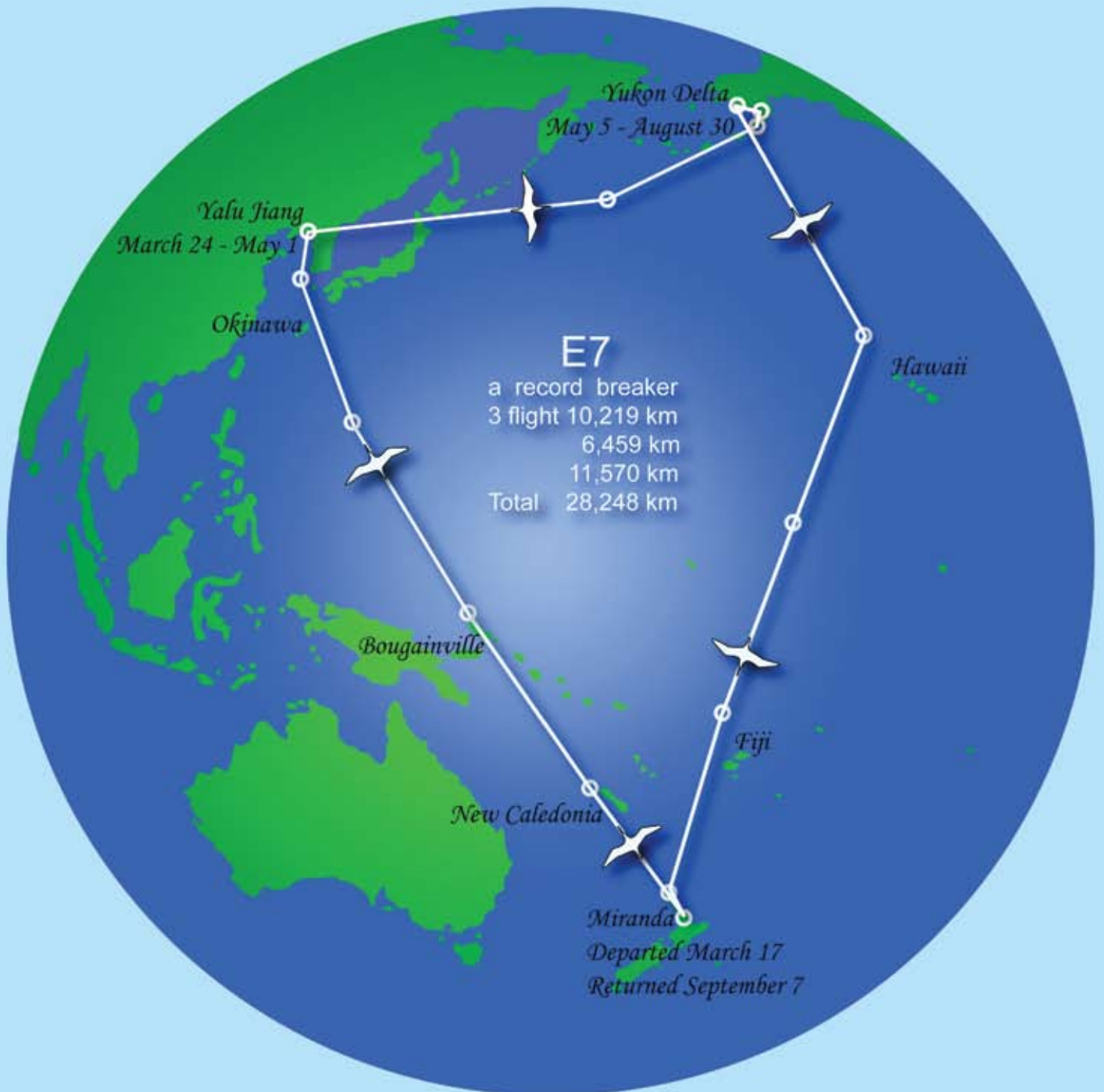
To keep up with this and other shore-bird monitoring projects run by the USGS check out www.werc.usgs.gov/sattrack/shorebirds/overall.html

MIRANDA

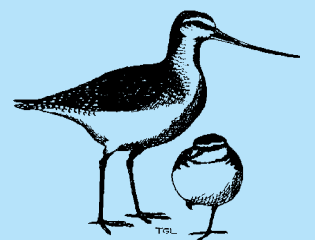
Naturalists' Trust

November 2007 Issue 67

NEWS



Godwits tracked home
Site Managers Workshop
Miranda Records



Bar-tailed Godwit

The Migration Story Continues

An update to Miranda News 66

Adrian Riegen

In Miranda News #66 we followed the satellite tagged godwits that made their way to the Arctic with their transmitters working. When we left the story the birds had made their way to the coast after the breeding season, here they were refuelling for the journey south. The transmitters were not expected to keep working for so long but keep working they did, so we wondered whether the batteries would last long enough to successfully track their southward migration. It seemed possible if they left early.



E7, nicknamed “Miranda” by Britain’s *Sunday Telegraph*, had already become something of a legend after her northward non-stop flight, flying from Miranda to the sister site of Yalu Jiang in China. In the process she set a record for the longest non-stop flight by a land bird yet recorded, 10,219 km, although Z4 came a close second with a flight to Shandong in China of 10,209 km. It was fitting therefore that E7 was the first to leave Alaska, head south and make it back to New Zealand.

This great project was made possible by funding from the Packard Foundation in America. One of the principle aims was to track migrating godwits through Asia and determine whether they might come into contact with carriers of Avian Flu then carry it to Alaska from where it could potentially get to the lower 48 states. The good news is that godwits and most other migrating shorebirds live on the edge of the sea with very little

chance of coming into contact with infected birds.

Summary of Satellite Tracked Bar-tailed Godwits

All dates and figures shown below are approximate and, in time, will be checked for accuracy.

E7 – Female

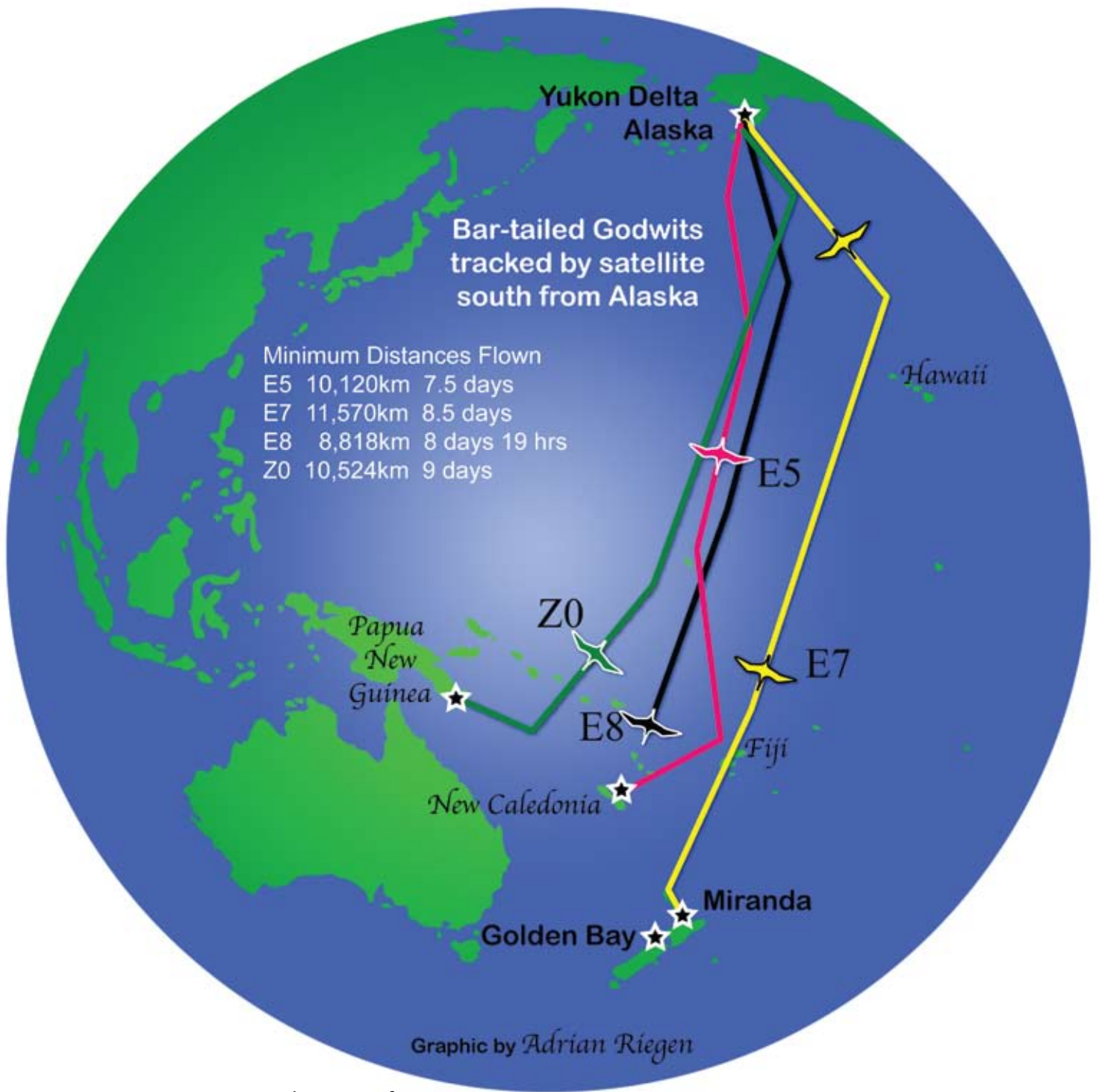
She finally left the breeding grounds at Manokinak and flew 155 km south to Cape Avinof and the Kuskokwim Shoals on 18 July; she stayed there for 41 days.

She left Cape Avinof early on the morning of 30 August, NZ time, and headed south

towards the Alaska Peninsula. Not stopping she flew on out over the Pacific, southeast toward Hawaii before turning southwest for a straight run down towards Fiji and on towards Cape Reinga. The transmitter was on near Cape Reinga, but switched off leaving us waiting, for what seemed like days but was in fact about 36 hours, until another signal was received. This showed she was back at the Piako rivermouth on the Firth of Thames, the very spot she had left on March 17 to fly north. She probably

Approximate distances of E7’s migration flights	
Miranda – Yalu Jiang	10,219
Yalu Jiang – Alaska Peninsula	6,459
Alaska Peninsula – Manokinak	778
Manokinak – Cape Avinof	155
Cape Avinof – Piako	11,570
Total	29,181

Copied from MNT News



Approximate distances of E5's migration flights

Miranda - Tsushima	9,334
Tsushima - Changdo	190
Changdo - Geum Estuary	270
Geum Est. - Cape Avinof	6,151
Cape Avinof - Port Heiden	452
Port Heiden - Cape Avinof	458
Cape Avinof - Port Heiden	490
Port Heiden - Cape Avinof	445
Cape Avinof - New Caledonia	10,037
Moved north in New Caledonia	82
Total	27,909

Approximate distances of Z0's migration flights

Golden Bay - Incheon	10,169
Incheon - Yalu Jiang	335
Yalu Jiang - Bristol Bay	6,154
Bristol Bay - Cape Avinof	402
Cape Avinof - PNG	10,524
Total	27,584

arrived Friday night, 7 September, after at least 11,570 km and 8 days 12 hours non-stop flying. She set a new record for the longest non-stop flight by a land bird, eclipsing her northward flight by 1,351 km. Of course as godwits fly in flocks she was not the only one to achieve this feat but it must be remembered she was carrying an extra 25 grams of weight inside her.

The battery finally stopped regular transmissions on 14 September while still at Piako. On that day Tony Habraken and I reached the roost, by boat down the Piako River, where we spent about one hour viewing from the boat before the tide turned. The mud was too soft to walk across and the rocking boat was not an ideal platform to look for leg flags. 3-400 godwits were using this roost tucked away on the edge of the mangroves and although we were sure E7 was amongst them she did not reveal herself. E7 has provided more information about Bar-tailed Godwit migration than any other godwit in history and yet she has been seen only once since her capture on 6 February, at Miranda on 9 March by Jan van de Kam and Jan Louis. E7 continues to



transmit occasionally, the latest being 18 October from Piako.

E5 – Female

No details of E5's movements were documented in the last Miranda News. A brief summary of her travels shows that, like E7, she spent most of her time after capture at the Piako rivermouth before finally departing northwards on 31 March. She flew 9,334 km non-stop to the island of Tsushima between Japan and South Korea, not an ideal looking place for godwits but she stayed there for two weeks before flying the 190 km to more suitable habitat at Changdo in southern South Korea. She stayed at Changdo for 34 days before flying on to the Geum Estuary near the Saemangeum reclamation. Only 12 days was spent at the Geum before she departed for Alaska on 8 June. Flying a similar track to all the others she reached the Yukon- Kuskokwim Delta (YKD) five days and 6,152 km later.

She did not appear to head inland to breed but stayed around the Cape Avinof area until 13 July when she went 'walkabout' down to Port Heiden on the Alaska Peninsula, a distance of 452 km. It was a short 'walkabout' as she flew back to Cape Avinof two days later.

On 27 July she again flew to Port Heiden but four days later she was back at Cape Avinof, another 900 km round trip.

This time she stayed at Cape Avinof until 21 September when a small window of opportunity opened to allow her and many other godwits to escape the worsening Alaskan weather. With a strong tail wind she headed south into the Pacific. After seven days flying and almost within sight of Fiji (and Suva's mudflats) she turned east and headed for New Caledonia, arriving there on 29 September having flown 10,037 km in seven and a half days. The east coast of New Caledonia does have some tidal flats,



which she found, although after several days she moved further north from where the last regular transmission was received on 12 October. An odd transmission on 17 October had her still in New Caledonia.

We will have to wait and see if she makes it back to Miranda later this summer.

Z0 – Female

Z0 appears to have bred in the Bristol Bay area of Alaska, an area where Bar-tailed Godwits have not been known to breed. She left there quite early in the breeding season, on 25 June, and flew the 400 km to Cape Avinof, where she stayed for 90 days. She departed on 22 Sept NZ time (a day after E5) and flew south across the Alaska Peninsula, out towards Hawaii, then swung westward to pass well west of Laysan Island and continued towards Vanuatu. At this point she appeared to be heading for north Queensland, however when she was some 1,000km north of New Caledonia she turned northwest towards Papua New Guinea and land-

Approximate distances of E8's migration flights

Miranda – South Korea	9,769
South Korea - Russia	8,157
Russia – North Yukon	1,527
North Yukon – Cape Avinof	414
Cape Avinof - Port Heiden	420
Port Heiden – Cape Avinof	415
Cape Avinof – Mid Pacific	8,818
Total	29,520

ed there on 2 October. She was still there on 25 October.

E8 – Female

Having arrived on the north YKD too late to breed after her detour to Siberia, E8 flew to Cape Avinof on 21 June and stayed there for 50 days then on 30 July flew 400 km south to Port Heiden on the Alaska Peninsula. She stayed there for only two days before flying the 400 km back to Cape Avinof where she stayed for a further 65 days.

E8 departed from Cape Avinof on 9 October NZ time with a good tail wind and was travelling at about 80 kph for the first 1,000 km. By 16 Oct NZ time she was some 8,818 km into the flight and approaching New Caledonia when the batteries finally gave out. On 18 October one signal put her 700 km north of the last fix but that was a poor signal with little meaning.

Z4 – Female

Z4 is another bird not covered in the last report but she also made it to Alaska. Z4 stayed in Golden Bay from 2 February till 19 March and then set off north on a 10,209 km flight to Shandong in China. After seven days flying, averaging 60 kph, she rested for eight days. Her next stop was Yalu Jiang 356 km to the north where she spent 26 days. On



30 April she set off in an easterly direction until well past Japan, then turned northeast towards the YKD. She arrived there after seven days flying on 6 May. She flew at least 7,482 km, which was 2,165 km more than

the great circle route, but she had taken advantage of favourable winds along the way.

She is unlikely to have bred successfully as she moved back to the coast at Cape Avinof on 11 June.

She stayed at Cape Avinof for 76 days before flying the 460 km down to Port Heiden on the Alaska Peninsula on 28 August. After only a day she flew northeast 165 km to Egegik also on the Alaska Peninsula. After three days she went back to Port Heiden, but four days later was back to Egegik, then two days later back to Port Heiden! She was still there when the batteries finally expired around 4 October.

Z5 – Male

The back-pack solar powered transmitter appears to have dropped off this bird while he was on the Siberian tundra sometime around mid-July, but the transmitter continued sending signals from the same place until at least mid-September.


Y3 – Female

She has stayed at Farewell Spit or close by since being captured in Feb-

ruary, obviously not in a hurry to go anywhere. The latest transmission was on 24 October.

Throughout the summer I hope people will make a special effort to find and check on the wellbeing of all the birds that were fitted with transmitters in Golden Bay and at Miranda. Of particular interest will be E5 and Z0 who stopped in New Caledonia and PNG; will they continue on to New Zealand in due course? Only time and hours of observations will tell.

Once again we have been very privileged to be part of this wonderful experience. It has been exciting to see this fascinating story spreading around the world, reaching the Tehran Times in Iran and at least one primary school class north of London that has followed this story with great interest all the way.

Our special thanks go to Bob Gill and his crew at USGS in Alaska, Nils Warnock at PRBO in California and the Packard Foundation who helped fund the project and to everyone out there looking for the flagged godwits and promoting the conservation of these astonishing birds. 

Approximate distances of Z4's migration flights:

Miranda – Shandong	10,209
Shandong – Yalu Jiang	356
Yalu Jiang – Yukon Delta	7,482
Yukon Delta – Cape Avinof	152
Cape Avinof – Port Heiden	460
Port Heiden – Egegik	165
Egegik – Port Heiden	165
Port Heiden – Egegik	165
Egegik – Port Heiden	165
Total	19,309

Update: On 15/11/07 Jesse Conklin and Sarah Lovibond saw E7 at the Thames roost. Apparently she looked "just like any other godwit".