

## BOHAI UPDATE #3 MAY 12<sup>th</sup> 2017

Well a lot has happened since the last update it has been a busy 10 days!

We have a new addition to this year's team, Bob Loos from GFN-Netherlands has joined us again as he did in 2015 and 16. GFN's scientific leader and general head Honcho, Theunis Piersma, also dropped in for his annual visit.

The New Zealand Ambassador to China and Chinese dignitaries visited the Luannan Coast.

We have been pondering why the Red Knot subspecies proportions have changed this year.

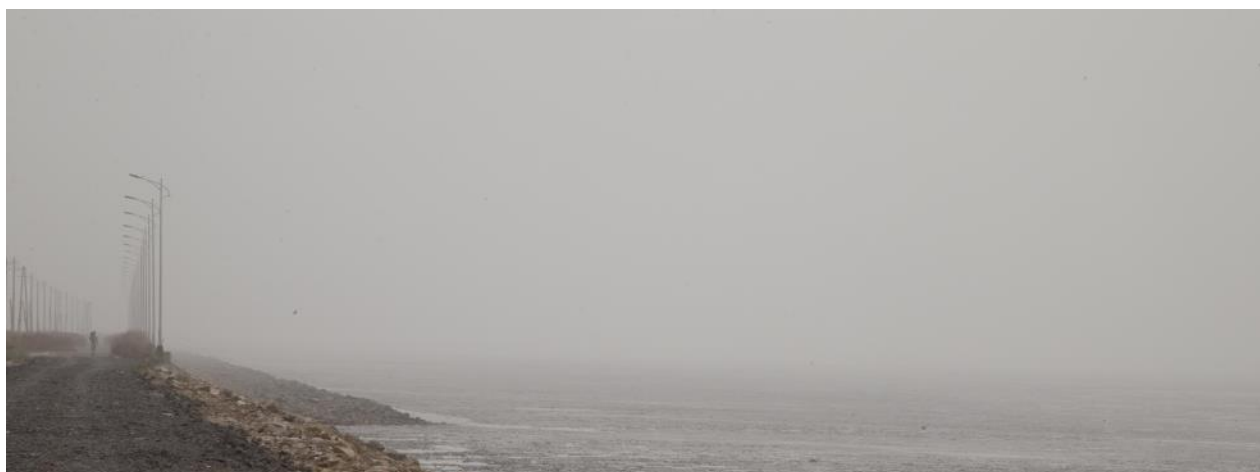
And exploring new areas and seeing lots of bands and flags along the way, of course.

As usual, for some reason, the Red Knots seem to vanish at this time of year for a week or so. In the past we have spent several days searching for them with no luck and in doing so wasting valuable scanning time. However we had a report of several thousand knots towards Tianjin. They had been seen at a site that we searched last year but didn't find any. Well the good news is that we have found them this year. The mudflats at the site are very difficult to scan for bands. The mud is dangerously soft meaning we cannot walk out to the birds and the birds leave the mud early to head to their roosts meaning they don't get close to the seawall. Luckily we have located their roosting area in the salt ponds and this has provided some great scanning albeit with a fair bit of walking involved.

From looking closely at the flag and band sightings we can confirm that it is birds from Nanpu. So, will they stay here all season or will they return back to Nanpu? Yet more questions to be answered as we untangle the knots.



A roost of knots ready to be scanned at our new site the Tianjin wind farm.



One of the recent super-smoggy days along the sea wall at Nanpu made the scanning difficult.

After 435 days of field work over 10 years at the Luannan Coast you might think that we would know all about the place and how birds use it. But that is not how biological systems work and certainly not in areas experiencing rapid human-induced change. This year's brain teaser for us is the Red Knot numbers, proportions of the 2 subspecies that use this site (*rogersi* and *piersmai*) and the number of colourband resighting's.

The first three weeks of this seasons resighting work has made us scratch our heads. We will try to explain and offer some reasonable guesses as to what might be happening to Red Knot migration this season at the Luannan Coast in relation to other years.

The total numbers of Red Knots at our 3 main sites are considerably down over the last 3 years. In 2015 we had 30,000 Red Knot here on May 6, in 2016 on the same day 15,000. This year we had 7,000. We did as we always do when we can't find birds at our regular sites, we explored. There are a few areas of mudflat that are difficult to assess accurately but we were fairly sure they were not there and we are certain they are not using the ponds at our main site. But we did find them, see later in the Update. So the easy answer to the low numbers is that 'the Red Knot haven't arrived yet' but of course we have 2 subspecies here to complicate the storey.

Usually at this time of year *rogersi* are the dominant subspecies in our scans. We conduct random scans of many 1,000's of Red Knot to asses this.

	rogersi %	piersmai %		rogersi %	piersmai %		rogersi %	piersmai %
WEEK 1 2015	93	7	WEEK 2 2015	88	12	WEEK 3 2015	83	17
WEEK 1 2016	94	6	WEEK 2 2016	85	15	WEEK 3 2016	70	30
WEEK 1 2017	89	11	WEEK 2 2017	74	26	WEEK 3 2017	52	48

The table above shows that this season there is a higher proportion of *piersmai* Red Knots here in the first 3 weeks. So with lower numbers overall but higher *piersmai* is it the *rogersi* that aren't here?

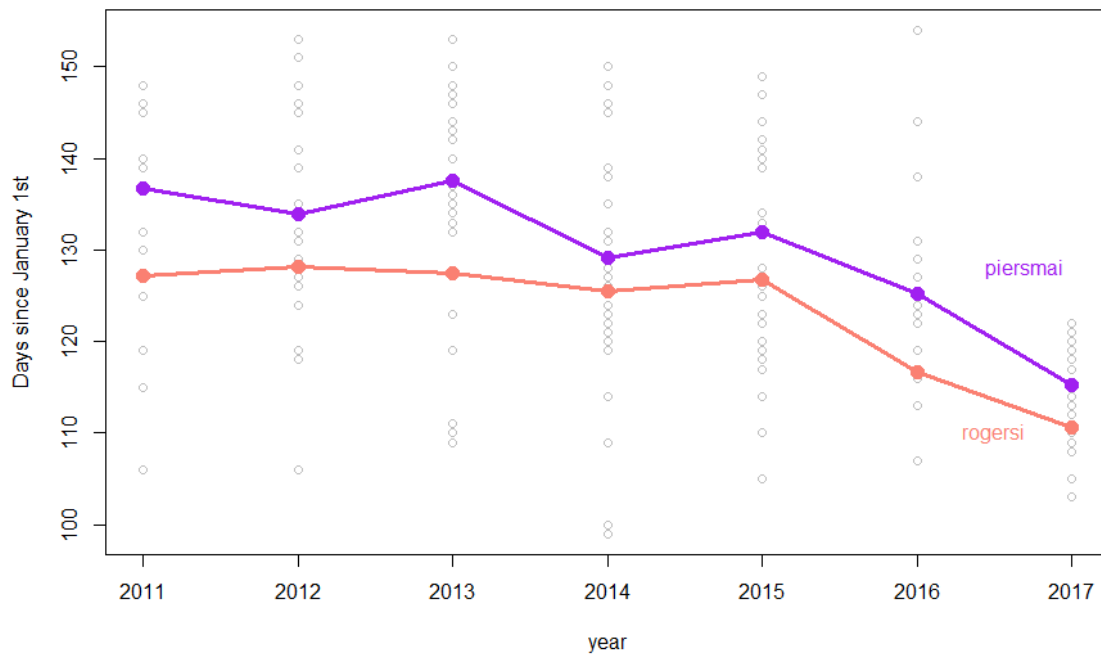
In support of the data showing a higher percentage of *piersmai* birds is the total number of sightings of colourbanded Red Knot marked in Roebuck Bay and 80 Mile Beach (NWA) for both the total resightings and the individuals that those sightings represent.

RED KNOT	2015	2016	2017
TOTAL RESIGHTINGS	60	87	203
INDIVIDUAL BIRDS	30	51	85

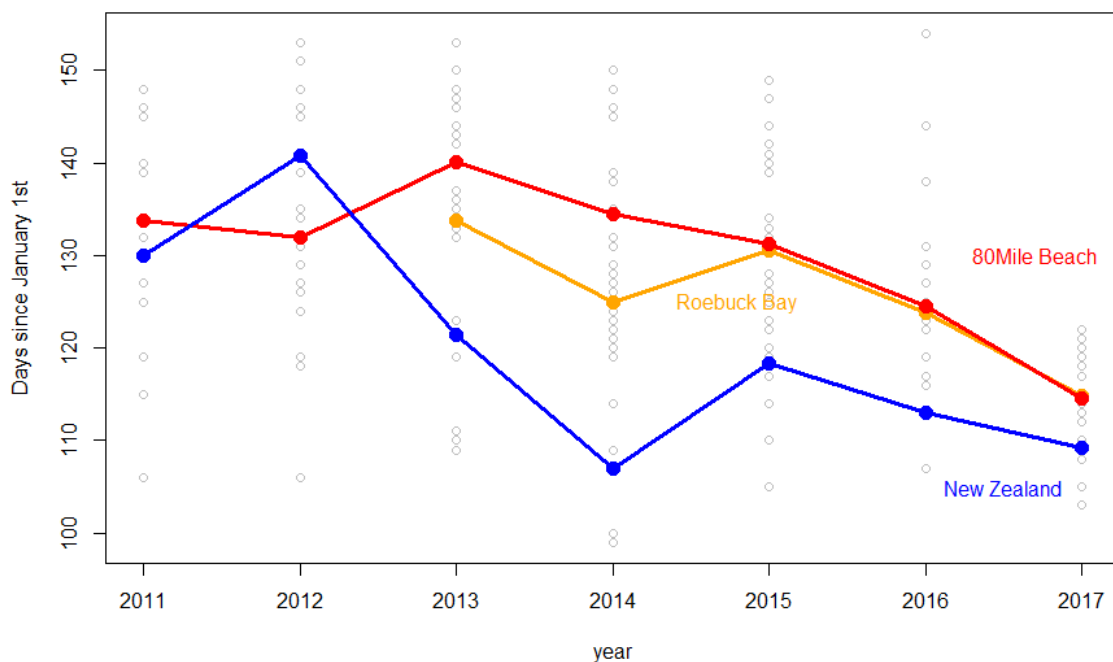
The table above shows the very obvious increase in resightings over the past 3 seasons during the first 3 weeks of our northward migration studies April 13 to May 3.

Why are numbers down but resightings so much higher? Have the *piersmai* knots from NWA arrived earlier than last year? Have the *rogersi* Red Knot from New Zealand and south east Australia not arrived because they are somewhere else? Adrian Riegen of Pukorokoro Miranda Shorebird Centre tells us that the last 3 years Red Knot numbers in New Zealand have been stable this is also the case in NWA and south east Australia. The increase in total resightings and individually marked birds cannot just be attributed to the good viewing conditions we have experienced at the beginning of our 2017 field season.

We have also looked at the first sighting dates of 42 individual Red Knot marked in NWA. These birds have up to 7 years of resighting history on the Luannan Coast from our previous work. For 38 of these birds 2017 is the earliest resighting date recorded here over all years.



The graph above shows the earlier arrival times for both subspecies in the last 2 northward migration seasons in comparison to the consistent timing over the previous 5 seasons.



The graph above shows that birds that spend their non-breeding season in New Zealand arrive before birds from NWA. And arrival dates for both non-breeding populations are becoming earlier.

As we accumulate more data maybe a clearer picture will emerge. Will we see birds leave earlier than in previous years? Are birds arriving earlier because of a changing climate? Is the food source depleted here so they need longer here to build up the necessary fat reserves for the next leg of their journey? It may take some sophisticated analyses to get the full story.

Thanks to Ying Chi Chan for turning the field work in to graphs!



Red Knots arriving from their roost onto the mud at Nanpu Mudflat.

A recent highlight away from the mudflats of Nanpu was that Theunis has recently been knighted. Ridder in de Orde van de Nederlandse Leeuw. You may need to ask a Dutch speaker to pronounce that for you! Or in English; Order of the Netherlands lion. It is in recognition for his work in science and conservation.



Theunis scanning some *piersmai* knots.





Ady lying on the Nanpu seawall, scanning knots during strong winds.

The biggest problem that shorebirds face in this flyway is habitat loss. It is happening on a massive scale and all the way round the coast of the Yellow Sea in both China and South Korea. This is very concerning to shorebird biologists and we have always tried to publicise the importance of this stretch of coastline, the Luannan coast.

This year Adrian Riegen from Pukorokoro Miranda Shorebird Centre in conjunction with the New Zealand Embassy in Beijing, Chen Ke Lin and Doug Watkins from Wetlands International had arranged for a visit from New Zealand's Ambassador to China John McKinnon and his entourage. We were also privileged to be able to show the site and some Red Knots to Mr Chen Fengxue, President of China Wildlife Conservation Association and former Vice Administrator of State Forestry Administration (vice-ministerial level). There were also representatives from provincial and local government. It was great for everyone to see the area despite the worst winds that GFN have ever encountered here! Dust from the reclaimed mudflat behind the sea wall was getting into everyone's eyes; tripods were blowing over and hats blowing off in to salt ponds. Despite the trying conditions we were able to show the group lots of shorebirds and most importantly Red Knots as these are the 'flagship' species of the Luannan coast.

GFN gives sincere thanks to all the organisers of this visit. The NZ crew seemed very engaged and knowledgeable due to Adrian Riegen's meetings over the past 2 years and from reading the GFN Final Reports. We hope there are further visits and that eventually reserve status granted for this vitally important area for migratory shorebirds.



Chris in full swing while the New Zealand Ambassador watches red Knots (*rogersi* of course) and Theunis presents a copy of his book Marathon Migrants.

With our focus being on Red Knots we spend most of our time on the coast but one afternoon we ventured into some nearby rice fields after a tip off from Drew that good birding was to be had there. He wasn't wrong and in an hour and a half we had recorded 36 species including 17 species of shorebirds. The highlights were 21 Temminck's Stints including a leucistic individual, a Grey-headed Lapwing and 776 Black-tailed Godwits. Despite being surrounded by smog, electrical pylons and standing near a very busy highway it was rather pleasant.

Some of the other birding highlights have been a count of 1,754 Asian Dowitchers near the Tianjin Wind Farm; this is our highest to date and represents 12.7% of the world population. A count of 40,000 Dunlin at Napnpu mudflats was also the highest we had recorded. Oriental Greenfinch is a long overdue addition to our list and a Pectoral Sandpiper is only our second record over all years. Of course we have had lots of sightings of species we expect to see such as Korean and Chinese Flycatchers, Siberian Blue Robins, Bluethroats and Rufous-bellied Woodpeckers, expected but great birds to see. Our current bird list for this season stands at 174.



Some of the 1,774 Asian Dowitchers near Tianjin.



This is how the GFN team rolls.

So far we have recorded 1,896 marked birds from 25 sites throughout this flyway on 14 different species. 428 of these are from the GFN colourbanding study.

There are some stark differences between canning at Roebuck Bay and Bohai Bay. When we are at our 'new' site, the Tianjin Wind Farm we have the backdrop of a massive power plant and after a quick bit of counting and some rudimentary maths we discovered that 1,224 articulated trucks rumble past on the highway every hour! Maybe not uncommon in major cities but not something we witness on the Crab creek Road.



Chris, Adrian and Bob  
The GFN Team 2017.  
12/05/2017