Black-tailed Godwits (*Limosa limosa*) in southern Spain, habitat description and finding colour marked birds from 3 – 13 October 2022

Doñana, Bonanza, Algaida & Odiel

Expedition report, University of Groningen & Global Flyway Network, The Netherlands

Jos Hooijmeijer & Theunis Piersma

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University of Groningen, FSE, GELIFES, Conservation Ecology Group
P.O. Box 11103, 9700 CC Groningen, The Netherlands

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Contents

Chapter 1. in this report is based on and partly identical to previous reports about searching and finding Black-tailed Godwits in Spain that can be found on:
https://www.globalflywaynetwork.org/publications

0. Summary

In this expedition from 3 to 13 October 2022 we visited the most important areas for wintering Black-tailed Godwits in southern Spain. Our aim was to resight individual colour marked birds, describe the habitats used by godwits and to gain information on threats and opportunities by field observations and meetings with local experts. In this report we present a daily overview of our findings with photos, locations we visited, numbers present and the first conclusions and recommendations. More reports from expeditions to Iberia and West Africa in previous years can be downloaded at: https://www.globalflywaynetwork.org/publications

The main goal of this week of fieldwork was to get as many resightings as possible in exactly the first half of October. The reason for the timing of this fieldwork was that in these two weeks one has the best chance to identify godwits that do not migrate to Africa at all, but stay in Europe for the entire non-breeding season. Based on tracks from geolocators and satellite tagged godwits we know now that godwits start returning from sub-Sahara Africa on a continuous scale between October and March, and that when the first ones are arriving the last ones are still on their way there. Thus, the first half of October is the best period for correct identification of godwits as a non-trans-Sahara-migrants; that is: the least chance to misidentify a bird. You could safely say that these birds winter in Europe but a trans-Sahara-migrant is not automatically a bird that winters in Africa!

Resighting godwits in early October is not particularly easy: the birds spend a lot of time resting (on one leg in dense flocks) between 9:30 and 18:30 and since most ricefields have not been mown yet, they mostly forage in shallow water where they find Chironomid larvae. Yet, if the water is not shallow enough, one will end up staring at swimming godwits without seeing any legs. The weather can be a spoiler too; with temperatures above 30C it is almost impossible to clearly see the rings between 12:00 and 16:00 due to heat haze.

In 9 days I scored 172 resightings of 127 colour ringed birds which is as good as last year (325-134 in 10 days) if you only consider the number of individuals seen, but much better than for instance 2018 (64-52 in 6 days). Numbers were lower in the first week of October and resighting opportunities were less good compared to last year. At Odiel the situation was more or less the same (~800), but Bonanza, Algaida and Codo de la Esparaguerra had less birds (~500) for no obvious reason. At Veta la Palma numbers grew from ~600 on 4 October to 3200 on the 10^{th,}, comparable to last year. They were now concentrated in a less accessible pond compared to last year and sometimes too far to be checked for rings. The revelation came from the east side of the Guadalquivir, where thanks to transmitter bird Limosa, a group of ~1000 birds was found on the freshly ploughed rice fields of Finca Casudis, a private rice farm between the river and Brazo del Este NP. No birds were seen at the new water reservoirs at Veta la Palma and Villamanrique; at least at Veta la Palma the water level was too deep. Based on resightings and information from birds with a satellite transmitter, the increase at Veta la Palma could (partially) be attributed to local movements of birds from Bonanza and Finca Casudis. There is no evidence that we already had an influx from birds that came across the Sahara.

Abdominal profile indexes as a proxy for body condition were on average 3.26 (n=97) on a 1-5 scale, where 1 is very lean and 5 extremely fat. That was much fatter than we saw them in recent years (only 2.59 in 2021). On the other hand, intake rates were much lower: only 10.4 Chironomid larvae per minute (n=16) compared to 18.7 in 2021 (n=37). That seems contradictory at first sight but why eat so much if you are already fat enough? More weight also means that you are also less agile to avoid a raptor attack.

A second goal of this trip was to gather information on habitat selection and to recognize threats and opportunities in these wintering sites of the godwits in Spain. At Odiel the situation is still

favorable but I learned that this is relying heavily on the saltwork activities that are crucial for maintaining the water management infrastructure in the basins.
This was one of the driest years in Spain of the past years and both nature and agriculture are suffering from that. This year only 30% of the ricefields could be cultivated due to water shortages and fallow land was omnipresent. Rice fields are an important habitat for many waterbird species. But the Doñana National Park is nowadays no alternative for them anymore. Here the situation is even worse as this summer for the first time all natural lagoons dried out as a result of climate change but extremely aggravated by intensive and sometimes illegal farming practices in the wider surroundings. The importance of Veta la Palma as a reliable resource for so many species and in huge numbers, is now more and recognized by the management of this private company. This means that they will move away from intensive aquaculture and even a EU-Life Project for habitat restoration of Marbled Teals might be developed here. The incredible numbers of birds at Finca Casudis at first glance make you glad until you realize that they probably had nowhere else to go.

Godwits and Flamingo's at Veta la Palma

1. Black-tailed Godwit Habitat and Demographic Studies

Introduction and backgrounds

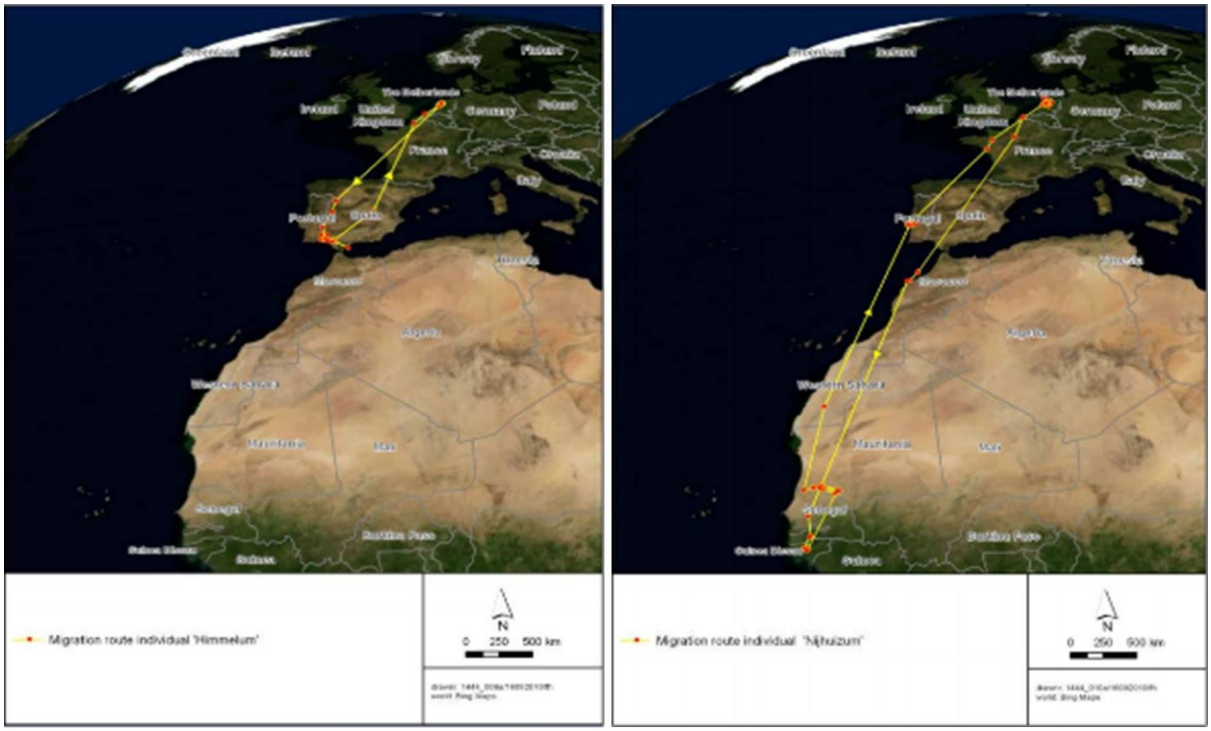
The Black-tailed Godwit (*Limosa limosa*; BTG) is a farmland bird that predominantly breeds in The Netherlands (Verstrael 1987; Thijsse 1904). The current Dutch population is estimated at 25.000 breeding pairs (extrapolated from Kentie et al. 2016) but still represents an important part of the total continental BTG population *Limosa limosa limosa*. However, the number of breeding pairs have declined rapidly over the last decades, as compared to the 120.000 pairs in the 1960s (Mulder 1972). This is mainly caused by a change in agricultural land use. Intensification and rationalisation have led to degradation of the breeding habitat, resulting in low reproduction. The population in the Netherlands cannot produce enough chicks for a stable population (Vickery et al. 2001; Newton 2004; Tscharnke et al. 2005; Teunissen & Soldaat 2006; Roodbergen et al. 2012). After the breeding season godwits migrate to southern Europe (Spain and Portugal) and West-Africa where they stay for wintering (Márquez-Ferrando et al. 2011; Hooijmeijer et al. 2013), mainly in agricultural areas such as rice fields. Throughout their annual cycle godwits select for farmland with a low to moderate land use intensity which makes them a key species to indicate routes towards sustainable agriculture. The Black-tailed Godwit qualifies since 2006 as “Near Threatened” on the IUCN Red List.

Demographic research Southwest Friesland

To measure the changes in population numbers and the causes, the University of Groningen started in 2004 a long-term research in the south-western part of Fryslân, The Netherlands. In 2007 the research area expanded to 8400 hectares and since 2012 it increased again with another 1600 hectares (Groen et al. 2012). A colour-marked population of godwits was set up to make them individually recognizable. The knowledge that has been collected with this research has been implemented by policy makers and nature conservation organisations. Since 2020, the project has expanded into the Godwit Landscapes Project, still studying the godwit as a main focal species, but in context of the whole food-web of which it is part. Therefore studies on soil macrofauna, predators, insect availability, vegetation changes and human land use management have been included (Hooijmeijer et al., 2022).

Migration and wintering sites Black-tailed Godwit

In 1983-1984 the wintering sites of godwits were explored for the first time. At that moment most godwits were wintering in rice areas along the West-African coast in Senegal, Gambia, Guinea-Bissau and further. Big numbers of godwits also occurred in the inner Niger delta in Mali (Altenburg & van der Kamp 1985), but they probably belonged to the eastern European population. Recently, the wintering behaviour has partly changed with an increasing number of godwits deciding to winter in southern Spain at National Park Doñana. In the 1980s during the first counts, only 4% of the NW-European population used this area as a wintering site but recent estimates suggest a big change with up to 23% of the population wintering in Spain. The most important reason for this is probably the creation of new artificial fishponds and rice fields. It is remarkable that this increase is not driven by climatic changes in the Sahel zone of West-Africa (Márquez-Ferrando et al. 2014). For godwits, staying in Iberia can be advantageous because they can skip a 3000 kilometre (v.v.) travel over the Sahara, a potentially dangerous migration route and save their fat stores for the next breeding season. The change in wintering grounds is remarkable and an important reason why we also want to do (demographic) research in West-Africa. We know now that juveniles are more likely to make these kinds of shifts than adults (Verhoeven et al., 2017), but not how they develop their individual migration strategy and perhaps thereby change the migration pattern of the species. These changes can also have consequences for the survival rate of both adults and juveniles. Moreover, they can lead to differences in reproductive success, for example due to differences in body condition upon arrival on the breeding grounds. Both are demographic parameters that can rapidly influence population dynamics.



Two classical migration routes of Black-tailed Godwits based on satellite tracking. The left map shows the route of an Iberian wintering bird. On the right an African wintering bird. Iberian wintering birds save a 6000 km flight and don't need to cross the Sahara twice (Hooijmeijer et al., 2013).

Habitat study

Anthropogenic alteration of natural wetlands is having a major impact worldwide with consequences (both negative and positive) for migratory species such as continental Black-tailed Godwits. On their migratory route Black-tailed Godwits pass through France and either stage or spend the non-breeding period in southern Spain and Portugal. Many will make the Saharan crossing to overwintering sites in West Africa, namely; the Senegal Delta and coastal region of Senegal, The Gambia, Guinea-Bissau, Guinea, Sierra Leone and central Mali. In all these countries godwits are heavily dependent on man-made habitats like water buffers, fish farms, saltpans and rice fields.

With remote sensing techniques and the locations indicated by godwits with satellite transmitters, we found out that during the non-breeding period Black-tailed Godwits show a preference for stable habitats within a relatively low productivity range (EVI value 0.1-0.2), which are associated with open wetlands, low vegetation cover and shallow surface water (Howison et al., 2019). Additionally, godwits spend much of their time foraging either on the mudflats of saline mangrove wetlands or in wet rice fields, however little is known of the nature of the prey items at different times of the year. However, remote sensing data is difficult to interpret without accurate ground-truthing information. In the past years we conducted surveys categorising and describing habitats, measuring environmental variables such as water salinity and soil penetration pressure, feeding efficiency of the godwits and carefully searching the substrate to establish the identity of godwit prey items.

Expeditions West-Africa and Iberia

In Southern Iberia godwits are largely confined to three major staging during northward migration: Doñana NP and Extremadura in Spain and the Tejo and Sado estuaries near Lisbon in Portugal.

Three main areas where many godwits can be observed during January-February; Extremadura (1), Donaña NP (2), Tejo-Sado (3)

Since 2005 we have started working every winter in those regions in close cooperation with local colleagues to study habitat use and collect resightings of individual godwits. Ring resightings in Iberia and West Africa are an important source of data for survival estimations in the different life stages of the godwits:

- If a godwit disperses outside our study area, the chance that it will be resighted elsewhere in The Netherlands is small. Without the resightings in the stopover areas, we would assume that this individual is dead and therefore underestimate annual survival, because in the breeding areas individuals have very different resighting probabilities.
- Secondly, with enough resightings from the Iberian Peninsula and West-Africa we can calculate seasonal survival. In other words, we can calculate in which period of the life cycle mortalities occur more often. Or we can find out if birds that cross the Sahara have a different survival rate than birds that stay the entire winter in southern Europe.
- By measuring the density of individuals with colour rings, we can monitor the population size of the western European part of the Black-tailed Godwit population (Kentie et al. 2016)

We also regularly visit southern Iberia, in particular Doñana in the first 2 weeks of October. The reason for the timing of this fieldwork is that in these two weeks one has the best chance to identify godwits that do not migrate to Africa at all, but stay in Europe for the entire non-breeding season. Based on tracks from geolocators and satellite tagged godwits we know now that godwits start returning from sub-Sahara Africa on a continuous scale between October and March, and that when the first ones are arriving the last ones are still on their way there. Thus, the first half of October is the best period for correct identification of godwits as a non-trans-Sahara-migrants; that is: the least chance to misidentify a bird. You could safely say that these birds winter in Europe but a trans-Sahara-migrant is not automatically a bird that winters in Africa!

Until recently, West-Africa was the only area along the migratory flyway from which we didn't have many observations of colour-marked individuals. In the past, only small numbers of colour-ringed birds have been reported, mainly by birdwatchers and, more recently, by local scientists. Therefore, in November 2014 the University of Groningen, in cooperation with Global Flyway Network and financially supported by Birdlife Netherlands, embarked upon their first expedition to the wintering grounds in West-Africa and since then we visited the region 2-3 times per year till 2019. This has yielded a great number of resightings. The most important goal of the first missions was to get a

good overview of the wintering grounds, resighting conditions, local facilities and knowledge and to make a start with setting up a dataset of individually recognizable godwits that winter in West-Africa. Secondly we made a pilot study of habitat choice and prey choice to collect ground truthing data for spatial analyses combining satellite imagery with GPS-tracking information. In the near future we aim to continue demographic research and set up habitat study and restorations projects in this area in close cooperation with local scientists, volunteers and conservation organisations as part of the EU LIFE-IP Project Grass-Bird-Habitat.

In this expedition from 3 to 13 October 2022 we visited the most important wintering areas for Black-tailed Godwits in southern Spain: Doñana NP, Odiel NP and the Bonanza & Algaida saltworks. Our aim was to resight individual colour marked birds, describe the habitats godwits used and to gain information on threats and opportunities by field observations and meetings with local experts. In this report we present a daily overview of our findings with photos, locations we visited, numbers present and the first conclusions and recommendations.

Overview of Veta la Palma and the numbering of the ponds.

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2. Birds and habitat, daily overviews 3 – 13 October 2022

3 October
Travelling from The Netherlands to Aznalcázar where I stayed at Finca Cerros Bravo.

4 October
Foggy start of the day: later humid, no wind and hot, 32C maximum, lots of mosquitoes, flies and horseflies, clear blue sky, nice breeze in the afternoon.
Total amount of godwits: ~630 (Veta la Palma)

On the way to Veta la Palma I noticed that the rice harvest had just begun. Later I was told that no less than 70% of all rice fields in the region was set aside because there was not enough water this summer to supply all crops of sufficient water. At the entrance of Veta la Palma all rice fields were fallow but most other arable fields seemed to have been used and had already been harvested.


All ricefields at the entrance of Veta la Palma were fallow

The big water reservoir was still filled and the water was too deep for godwits but hundreds of ducks and gulls were making use of this new habitat, accompanied by a Peregrine falcon. The natural lagoons, called lucio's, were all dry except Esparragosilla but most big fishponds were full of water and too deep for godwits. Godwits were however found in the now almost completely abandoned small fishtanks that used to be covered by nets. These are no longer in use and the drying up ponds apparently provided food to tens of godwits. The majority of the 630 birds I saw today, was found in the big ecological fish tanks A4-A6; the water level in the corners was suitable for several hundreds of godwits. During day time they were mostly asleep but after 17:30 they started to move around. Some flew off but >90% stayed in the vicinity to forage apparently on Chironomids. This yielded the first 18 resightings of this trip; 10 were of our own scheme but I also saw 5 German and 2 English

head started birds. Apart from these tanks we saw about 20 birds in an almost dried up B7. On the eastside (C, D and E ponds) I did not find any godwits at all. As usual, Marsh harriers were the most common raptor species but I did not witness a single attempt to catch a godwit. Other predator species were Red fox and Egyptian mongoose.

The big water reservoir at Veta la Palma was still filled with water

5 October
Clear skies, no wind and hot, 33C maximum
Total amount of godwits: ~775 (Odiel), ~700 (Veta la Palma)

In the early morning I arrived at Odiel NP to look for godwits with José Manuel Sayago but he was unfortunately ill. But the director Enrique Martínez Montes had arranged that José Manuel Méndez could join me. It was great to be with him in the field because he knows the godwit schemes very well and regularly sends us his valuable sightings. He also told me that it is quite a privilege for me to be allowed to work at the NP because access is very limited. So I am grateful for this opportunity. At Odiel Black-tailed godwits live with the rhythm of the tide: most birds forage on the mudflats along the Rio Odiel at low tide and return to the lagoons of the NP at high tide. When we arrived the tide was getting higher and godwits started to arrive or were already there. About half of them were still active and we scored 10 ring combinations in the 775 godwits that were spread out in smaller groups over de NP with most legs visible. We could get close enough to even get 3 codeflags of birds that were ringed as chicks at the nest. From previous times we know that the *islandica* subspecies also frequents this site but we saw no ringed individuals. Typical for this estuary site is the mix of Black-tailed Godwits with their Bar-tailed relatives and other saltwater species. Marsh harrier was the dominant raptor species; godwits flew up when it approached but there was no real panic situation. By 1 pm we had seen all birds at least twice and their immobility in combination with the heat made our resighting efforts inefficient and I decided to go to Veta la Palma for an afternoon

scan of the group I had found yesterday. On Friday José Manuel hopes to join me again. I skipped the El Rocio lagoon on the way back as José Manuel told me it was completely dry.
In the afternoon I found around 700 godwits in the A5 tank at Veta la Palma. Unfortunately most of them were far in the back which made ring reading not as productive as yesterday. But still another 6 and 3 Spoonbills. Some of them were seen here last year as well. The behavior was the same: mostly asleep till 5 pm and more foraging at sundown around 8 pm.


A5 at Veta la Palma is the place to be this year

6 October
Clear skies, no wind and hot, 31C maximum
Total amount of godwits: ~450 (Bonanza, Algaida, Codo de la Esparaguerra), ~20 (Brazo del Este)

Today was an off-day: 0 rings scored; well okay, 1 Spoonbill. The long drive to Bonanza is always a risky enterprise: are they there and can the legs be seen? But with 3 birds with a transmitter in the general area, the odds were good. The nice walk around the fish farm complex in the center of Bonanza saltpans provided only a small group far away at an inaccessible place; the water level was ideal so I will be back later this week.


Only a small group far away at in inaccessible place at Bonanza saltpans

The track that connects Bonanza with Algaida was in a good state and I could take the shortcut along the river. At Algaida there was only a small group on one leg, no rings and in the rest of the

abandoned pans the water level was too high for godwits. But at Codo de la Esparaguerra, there were 390 birds in the reservoir lake east of the fishfarm. About half of them was foraging in deep water and only about 30 could be checked for rings. Among those was a German transmitter bird (Tinadja?) but it stayed too deep to identify it. The other half was roosting at the opposite end of the pool. As it was at the hottest hour of the day, it was impossible to see rings; I waited till 4pm but only more birds went to sleep and the visibility did not improve. I decided to check Brazo del Este instead. The arable fields I drove through were bone dry and the cotton harvest was in full swing. At Brazo del Este there was plenty of water though with hundreds of ducks and a small (20) group of godwits without rings. I tried to locate the spot where another transmitter bird was "seen" and ended up in the middle of the rice harvest with 10.000's of Glossy Ibises, White Storks and gulls but no godwits. Some of the fields were already ploughed and seemed ideal for godwits. But the area is huge and many tracks are closed with chains and fences. Hope for better luck tomorrow!

7 October
Mostly clear skies, no wind and hot, 31C maximum; nice breeze in the afternoon
Total amount of godwits: ~800 (Odiel NP, Rio Odiel, Rio Tinto), ~1600 (Veta la Palma)

José Manuel Méndez and me went to the Rio Odiel this morning to check the exposed river banks at low tide. We found 200 along the riverside boulevard in the Huelva industrial area opposite a big copper factory. They were foraging on what seemed to be *Arenicola maritima.* They could easily be approached as they were completely used to joggers, cyclists and cars passing by at close distance. The ring density was a bit disappointing with just 2 ring combinations.

Soft fruit plantations everywhere around Palos de la Frontera

As it was still low tide we decided to check the neighboring Rio Tinto that joins the Rio Odiel at Huelva. Along both rivers extensive saltmarshes can found. In the middle of the Rio Tinto there are several islands and mudbanks where German transmitter bird Jana has her winter quarters. Most of the area is inaccessible but from several viewpoints it is possible to get an idea how vast this area is and with some luck, you can observe godwits close by. We saw some 15 godwits at the Rio Tinto but

no rings. Despite the clear importance for waders and other waterbirds the area has no protected status. Along the east shore between La Rabida and Moguer, the land is infested with soft fruit plantations. Pesticide use is a big issue and the plants consume a lot of water that has to be brought on site from a reservoir 60 km upstream, and is filled with rain- and river water.

Marismas del Rio Tinto; winter quarters of transmitter bird Jana

After that we returned to Odiel NP and found godwits at the same sites as yesterday, mostly Isla del Liebre where we encountered the same 2 birds of this morning at the river banks, but also a group of 400 on the eastern edge at Gravera del Falcon (37.2400 N, -7.0045 W). The shrubs adjacent to this place were crispy dry as like in other place rainfall is decreasing due to climate change (and not so much the result of intensive agriculture like in the Doñana region). We took a fat score sample (2,83; n=29) and scored intake rate (10, 9, 10, 8, 10 Chrironomids/ minute). Spoonbill m/W[FALZ] was also seen at Veta la Palma 2 days ago. With 15 ring combinations it already was a fruitful day. Yesterday José Manuel had probably seen some extra ring combinations when the water level was a bit lower and more legs were visible. He explained that the saltworks are entirely responsible for the water level in the NP. They take care of the water inlet and the whole system of pumps, pipes and sluices. All the water bodies are connected and form a chain of increasing salinity before the water is let into the active saltworks that is a 24/7 business most of the year except in winter when evaporation is too low. Without the saltworks maintenance of the habitat quality and supporting the large bird numbers would become difficult.

Godwits at Odiel NP, Gravera del Falcon.

In the afternoon I visited Veta la Palma once again. The number of godwits in A5 had grown to 1600 that started foraging after 19:00. I wonder where these come from. Perhaps from the east bank of the Guadalquivir where I could hardly find any yesterday? With good light conditions and at fairly close range that yielded 17 combinations in just over 1 hour. Good to make up for the bad day yesterday!

8 October
Mostly clear skies, no wind and hot, 29C maximum; nice breeze in the afternoon
Total amount of godwits: ~515 (Bonanza, Algaida, Codo de la Esparaguerra)

Today I tried my luck again in the south but unfortunately the godwits were again far away and inaccessible at Bonanza, 300 this time. Algaida was a little better; 30 present and one French combination. At Codo de la Esparaguerra the water level was considerably lower. When I arrived, 130 birds were sleeping on the opposite shore and 55 others were foraging but now with (barely) visible legs. I decided to wait till the others would become active which happened at 17:30. I could check almost all of them but found just German transmitter bird Tinadja and a Spanish bird. Don't think I will be back here this year as the opportunities to read some rings are poor.

9 October
Half clouded, nice breeze 2-3 Bft increasing to 4 Bft in the late afternoon, 30C maximum
Total amount of godwits: ~1600 (Veta la Palma)

Today I was the whole day at Veta la Palma. On the way there I noticed a lot of rice fields had been harvested this week. Like in other years, it seems that the first week of October is the moment to

start. On the freshly ploughed fields were 1000's of storks, gulls and ibises but no godwits. A few Spoonbill rings were read though.

Rice harvest in full swing near Isla Mayor

The godwits were again in A5 and I got a few combinations. But by 9:15 all of them were deep asleep until at 11:00 Marsh Harrier made them fly up and they landed for away at an inaccessible place. I scanned the rest of Veta la Palma but found no godwits. I decided to return to A5 in the late afternoon and see if they had come back in the meantime. They did and were pretty close to the road. And with a strong wind from behind the water level was a bit lower. This made ring reading again very productive with 17 combinations in 2 hrs. I did an intake score when they woke up around 18:55: 7, 4, 3, 13, 11 Chrironomids / minute in A5. At dusk they all flew up to start foraging in another part of A5.

10 October
70% clouded, no wind 1 Bft increasing to 3 Bft in the late afternoon, 27C maximum, light shower
Total amount of godwits: ~1000 (Finca Casudis; 37.12832/ -6.08576)

Today I tried to find transmitter bird Limosa that was already for some time in the Brazo del Este area. Recently it had been located at Finca Casudis, a private rice company. I asked Rocio Sanchez who was working at the lab and she arranged a meeting with the director who granted me access for one day. That turned out to become the most productive day of this trip with more than 30 godwit and 10 spoonbill combinations. When I was searching for Limosa, I received an email from José Manuel Méndez that he saw it at Odiel NP! But nevertheless it had showed me the way to a bonanza of colour rings. The rice was being harvested at record speed and after the mowing came the ploughing tractors to immediately get rid of the stubble. A large part of the Finca was now optimal foraging habitat for thousands of gulls, ibises, storks, flamingo's and at least 150 Spoonbills. I

witnessed many freshwater lobsters being depredated and the godwits were after the spilled rice; not sure where the flamingo's and Spoonbills were foraging on. The Spoonbill presence also attracted Hilco Jansma, a Dutch guy who is making a movie on Spoonbills and their migration to southern Europe and Africa; he showed me a spectacular trailer. I spent the whole day at Finca Casudis. From 11 to 15 the godwits were not very active but I still had enough opportunities to score rings. I also took a foraging efficiency sample: 3, 3, 3 rice kernels per minute (3 different birds). Foraging circumstances were ideal: freshly ploughed, wet ricefields. I did not see any interactions between godwits and ibises but they definitely kept an eye on the large gulls. Marsh Harriers were passing over frequently to scan for weak individuals but they did not cause panic.

Thousands and thousands of ibises, storks, flamingo's, spoonbills, gulls and…..1000 godwits at Finca Casudis

11 October
80% clouded, no wind, 1 Bft increasing to 3 Bft in the late afternoon, 27C maximum, some showers
Total amount of godwits: ~1500 (Veta la Palma)

Today I spent the whole day at Veta la Palma. In the morning the birds rested till 11 am and unlike other days 80% started foraging till the early afternoon. Perhaps because of the rainy and dark weather? That gave some opportunity to read rings till 2 pm. I scored fat accumulation on a 1-5 scale (API): 3.5 $\pm$ 0.8 SD (n=52), so the godwits were pretty fat which seems odd if you don't have to fly to Africa. Intake rate of Chironomids was 7, 3 and 10 items per minute (n=3). After that session I spoke with Miguel Medialdea, biologist at Veta la Palma. He confirmed the continued abandonment of the semi-intensive, netted fishponds and transition to a renewed focus by the company management on the ecological values of this aquaculture complex: water, food and rest for thousands of waterbirds that can no longer be provided by the National Park that is suffering from an intense, increasing and persisting drought. That catastrophe caused by (partially illegal) intensive agriculture and climate change was even a topic on the Dutch national TV today. No less than 70% of the ricefields could not be used this year, something that is also likely to change the agricultural policy on the Veta la Palma premises but they will continue to refrain from using pesticides (on the crops). Miguel also explained that the water in the big reservoir is only from rainfall as the inlet of river water was no option as a result of the drought.

It is an outrage that ecological values can't be preserved within a National Park of international importance and that birds can only find a safe haven on commercial grounds as Veta la Palma and Finca Casudis. Another example of that is the EU-LIFE application to create a suitable breeding

habitat for the endangered Marbled Teal in the abandoned most southern fish ponds as there is no suitable habitat for them anymore within the National Park.
The afternoon check brought just a few extra rings as all birds had moved to the far end of the A5 pond after a Marsh Harrier made them fly up.

12 October
Sunny, 1 Bft increasing to 3 Bft in the late afternoon, 29C maximum
Total amount of godwits: ~3200 (Veta la Palma)

The last day of this trip was spent at Veta la Palma. The total number in A5 had grown from 600 last week Monday to 3200 now. Apparently new birds are coming in all the time. Where do they come from? From other places in Iberia or could there also be early arrivals from West Africa? There is no evidence for the latter from the satellite bird data but indeed godwit Rosalie had moved over from Bonanza saltpans today and I also identified godwits that were at Finca Casudis two days ago. So the recent increase at Veta la Palma could be due to local movements. Rosalie also showed up 2 days ago on a freshly ploughed rice field near Villamanrique which supports the theory that the rice harvest attracts godwits to Doñana, especially Veta la Palma.
Ring reading conditions were optimal and although they woke up only at 7 pm, I went home with a decent 32 resightings to finish this trip that brought us 172 sightings of 127 different individuals .

The now abandoned small fishtanks provided new habitat for godwits after removal of the nets; Red Foxes were numerous here

Appendix A: Godwit locations visited