Black-tailed Godwits (*Limosa limosa*) in southern Iberia, habitat description and finding colour marked birds from 2 – 27 February 2025

Portugal (Sado, Tejo & Algarve), Spain (Doñana, Cádiz & Extremadura)

Expedition report, University of Groningen & Global Flyway Network, 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 2 to 27 February 2025 we visited the most important areas during northward migration for Black-tailed Godwits in southern Spain and Portugal. 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. More reports from expeditions to Iberia and West Africa in previous years can be downloaded at: https://www.globalflywaynetwork.org/publications

Tejo and Sado

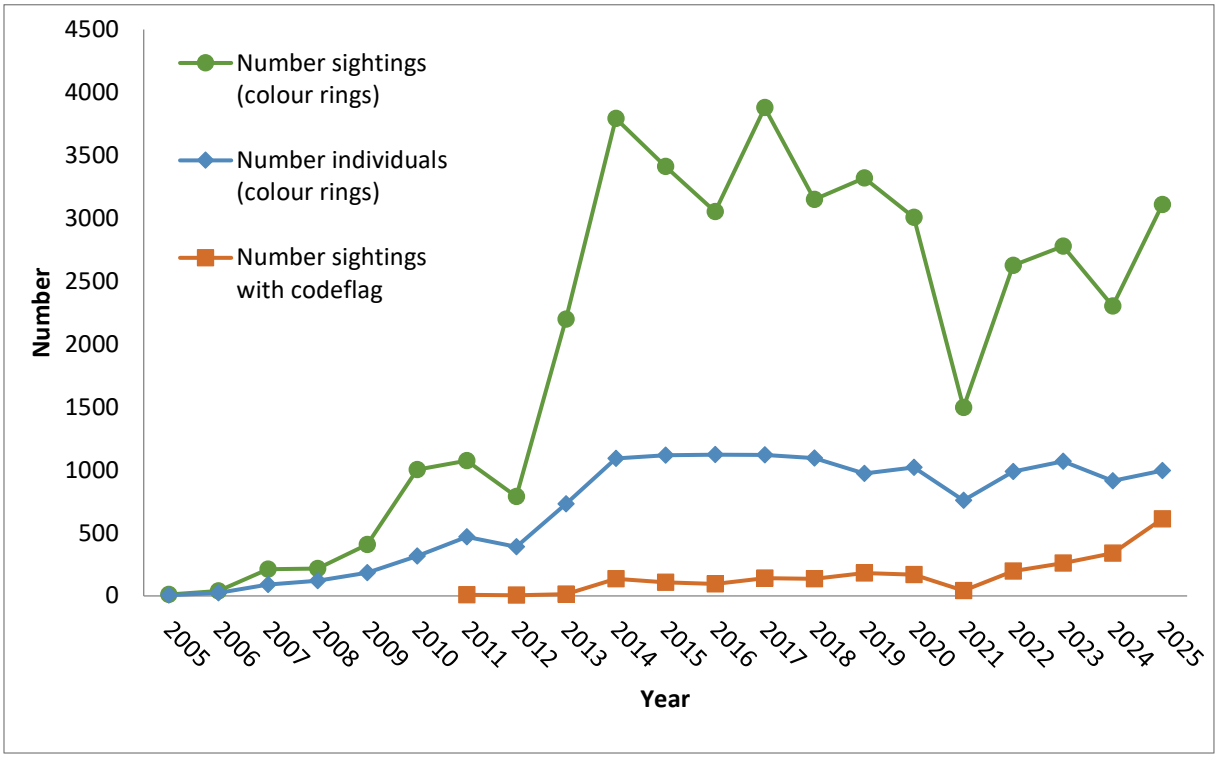
Fieldwork in Portugal started under favourable conditions: calm, dry and sunny weather, enough water in the ricefields for godwits to forage and roost and ploughing created new opportunities to forage throughout February. The first team took off with a great number of resightings but by the time they left the weather changed to dense fog, wind and rain on most days making ring reading challenging. Traditionally the largest number of godwits in the Tejo estuary were found in ricefield complex of Giganta/ Ponta d'Erva/ Cardal. Already in on the first day we found a big roost of 30-35.000 birds in the SE at Ponta d'Erva from where godwits spread all over suitable, wet, recently ploughed ricefields, especially north of the airport. After a week the roost shifted towards Cardal. On most days they foraged in the morning, roosted at midday and started foraging again in the afternoon. Half February maximum numbers were reached and estimated at 55.800 birds but by the 20th numbers started to drop and under favourable winds godwits arrived early in The Netherlands. The main cause of disturbance were the omnipresent raptors, hunting on Sundays and occasionally a military aircraft flying over at low altitude. But in general, the Tejo ricefields south of the N10 are a predictably good and safe haven for godwits for wintering and on their way to the breeding grounds. After a series of numbers, godwit numbers were good again the Sado estauary, near Comporta (7000 maximum). Despite good conditions no godwits were present at Belmonte ricefields and Barroca de Alva. The Samora Correia and Carregado had not been ploughed yet and did not hold any godwits. Small numbers were found near Alcochete and Samouco.

Doñana, Cádiz and Extremadura

Based on bird counts and observations from Doñana in January, we had in advance high hopes of seeing many Black-tailed Godwits and reading lots of rings. Unfortunately, this turned out differently. The heavy rainfall in the area in autumn and winter had effectively restored the wetness after many dry years. This was a gamechanger for the godwits, who used the almost inaccessible and restricted nature reserve during the day to rest and snack, to visit the wet ploughed rice fields around Isla Mayor at night to forage, as confirmed by birds with transmitters. Due to high water levels in and around the original Veta la Palma fishpond complex, significantly fewer godwits resided there than in previous years (~800). We hope future water management will restore good situations for waders. These circumstances made it difficult for us to properly estimate the numbers or to read large numbers of rings. El Rocio, Brazo del Este and Bonanza-Algaida saltpans were almost without godwits this year. The saltpan-complex between Cadiz and Puerto Real hosted the same numbers (around 1000) as in 2024, with godwits mostly at Salinas of Caño de Beatriz near Chiclana de la Frontera. In Extremadura it was extremely wet, 30% of the rice fields ploughed, so actually good conditions for godwits. Nevertheless, we recorded the lowest numbers ever in this area since we started our yearly scans for colour rings in this area in 2007. Due to the absence of godwits tagged with a GPS-transmitter, which in the past sometimes showed us the way to hidden foraging or roosting sites, we may have slightly underestimated numbers. But at most 1,000 Black-tailed Godwits will have stayed in the area during our survey, predominantly at Almoharín. Whether the still-expanding olive tree plantations, fruit and almond tree plantations are to blame is difficult to say. The fact is, however, that the Extremadura-area seems to have lost its best time for Black-tailed Godwits as a stopover given the ever-decreasing numbers in recent years.

Numbers, individuals and percentage of the population seen

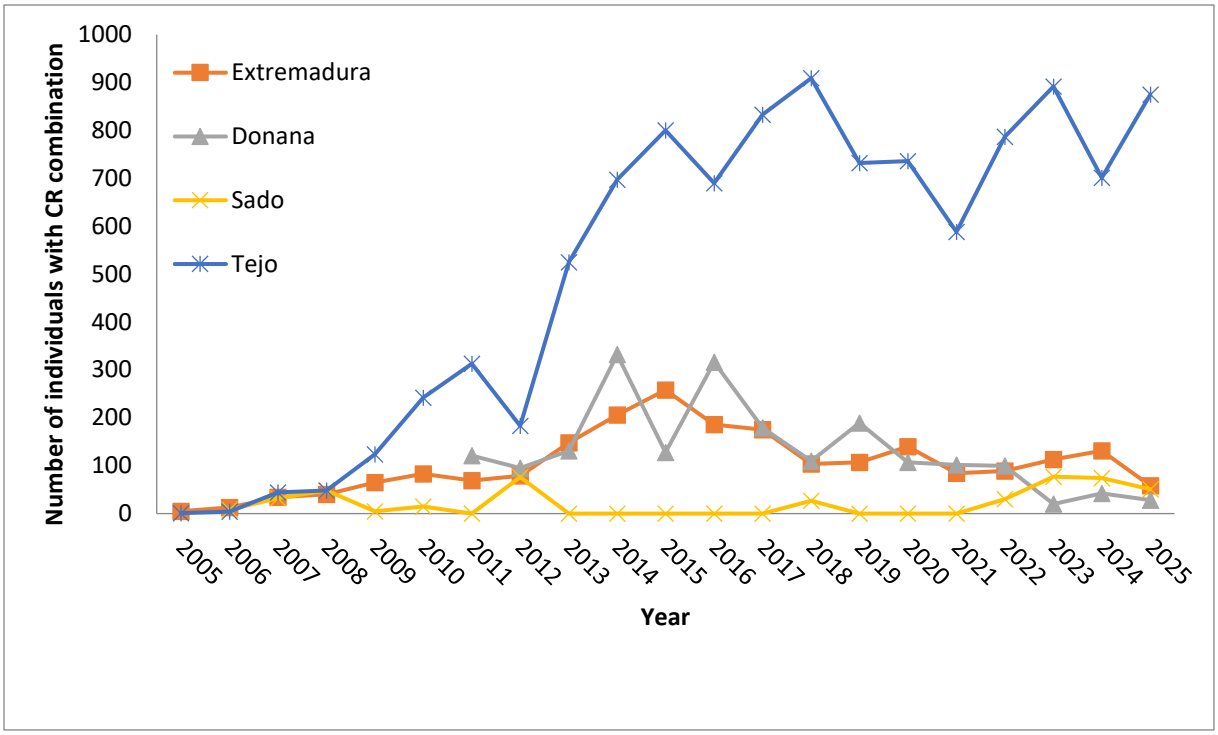
A significant increase in the number of sightings of colour-ringed individuals from our own scheme was achieved between 2012 and 2014, largely due to a combination of an increased sighting effort and a >50% true increase of ringed birds. Despite a fairly constant resighting effort since then, the number of sightings decreased slowly from about 3.800 to just over 3.000 in 2020. In 2025 the number of resightings was back at the level of the pre-Corona dip in 2021. Keep in mind though that the number of resightings was inflated in 2022 and 2023 as a result of extra sightings by our Portuguese and Spanish colleagues who contributed ~500 resightings per year in those years, considerably more than in previous years. In that light 2025 was even a little better. The number of individuals seen has remained very constant since 2014 but the number of code flags read, still increases every year, which is a reflection of the number of codeflags in the population.



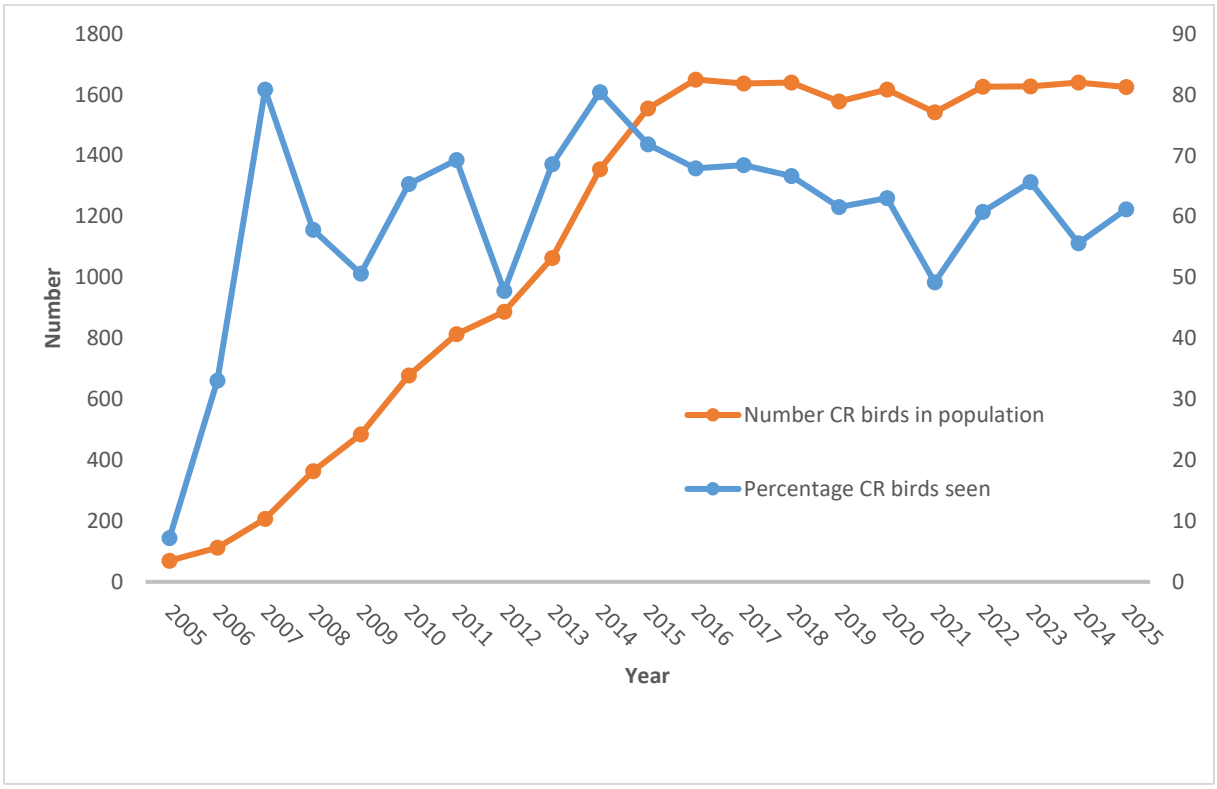
Total number of sightings and observed individuals from the RUG-scheme with colour rings and code flags in Extremadura, Doñana NP, Tejo and Sado in January-February of each year.

If we zoom in to the different regions, it becomes clear that the number of sightings has remained fairly constant in the Tejo area but Extremadura and Doñana show an overall decline since 2015. In Extremadura this a true reflection of the decrease in godwit numbers but in Doñana resighting numbers are highly dependent on the suitability of Veta la Palma for waders and whether we're able to get to the areas where the birds are. In wet years, many birds stay in inaccessible parts of the National Park. In 2025, both conditions were unfavorable for resightings. In the Sado godwits were virtually absent for years but seem to be picking up again since 2022 and remained more or less level in 2025.

The estimated number of alive ringed individuals in the population has remained quite constant at ~1600 birds. With constant numbers ringed in a shrinking population, one would expect higher ring densities and a higher ring reading efficiency rather than the slight decrease in percentage seen. This could be a result of “dilution” of the Iberian *limosa* population with *islandicas* or a shorter stop over time as birds seem to arrive in The Netherlands earlier in recent years. All in all, as you can see in the figure below, we still have resighted more than half of the ringed population which is an excellent score and indispensable for our survival models.



Total number of observed ringed individuals of the RUG scheme in Extremadura, Doñana NP, Sado and Tejo in January-February of each year (no code flags).



Estimated number of colour ringed birds in the population that are still alive and the observed percentage of those birds in Extremadura, Doñana NP, Sado and Tejo Estuary all together in January-February of each year (no code flags).

1. Black-tailed Godwit Habitat and Demographic Studies

Introduction and backgrounds

The Black-tailed Godwit (*Limosa limosa*; BTG; godwit) is a farmland bird that predominantly breeds in The Netherlands (Verstrael 1987; Thijsse 1904). The current Dutch population is estimated at 20-25.000 breeding pairs (extrapolated from Kentie et al. 2016) and represents an important part of the total continental BTG population *Limosa limosa limosa*. However, the number of breeding pairs has declined rapidly over the last decades, as compared to the 120.000 pairs in the late 1960s (Mulder 1972). This is mainly caused by a change in agricultural land use, urbanisation and increased predation rates. Intensification and rationalisation of farmland 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.

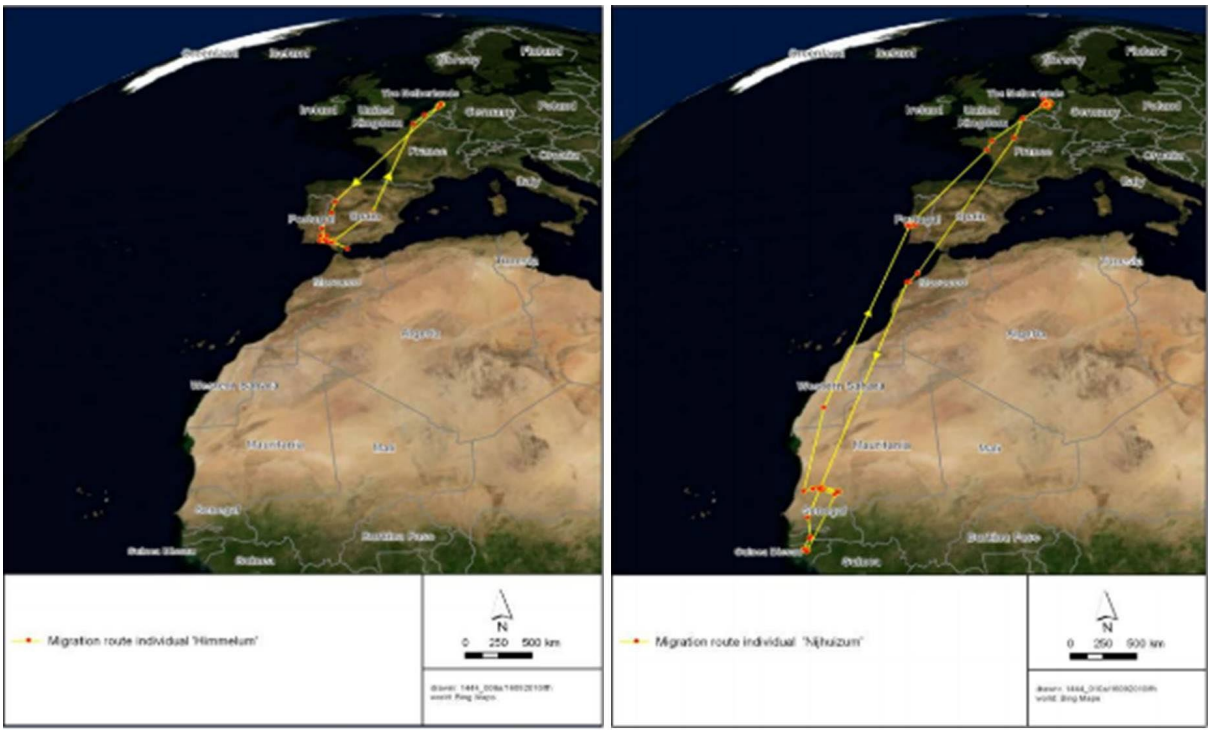
Demographic research Southwest Friesland

To measure the changes in population numbers and unravel the causes, the University of Groningen started in 2004 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. 2024).

Migration and wintering sites Black-tailed Godwit

In the 1980’s 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 predominantly 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 and Portugal. 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, mainly Doñana NP and surroundings. 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). We know now that juveniles are more likely to make these kinds of shifts than adults (Verhoeven et al. 2017) and that the genetic component of their individual migration strategy is limited (Loonstra et al. 2023). These aspects can have consequences for changes in migrations patterns and 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. 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 Iberia

In Southern Iberia godwits are largely confined to three major staging areas during northward migration: Doñana NP and Extremadura in Spain and the Tejo and Sado estuaries near Lisbon in Portugal. Smaller numbers can be found in the area around Cádiz.

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 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. Dispersal is especially interesting when looking at juveniles; resightings outside the Netherlands from adults ringed as juveniles give us inside in how many juveniles survive but go breed outside of our study area.

In this expedition from 2 to 27 February 2025 we visited the most important areas for Black-tailed Godwits in southern Spain and Portugal during northward migration. 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.

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2. Birds and habitats, daily overviews 2 – 27 February 2025

Portugal Team 1: Kees de Jager and Maarten Hotting, 2-14 February

3 February
Sunny day, NE 2-3 Bft wind, max. 16 C
Total amount of godwits: 30.000-35.000

After arriving yesterday at the end of the afternoon – with no godwits to be seen on the route to our home for the next two weeks – today the first day in the rice fields this season.
We started with collecting a key card for the Giganta rice fields at the office. Rui wasn't there – he is now only there on Wednesdays – so no information on the area and Godwit locations.

Luckily the transmitter birds showed us the way towards Ponta d'Erva. The first fields did not look good – only rice stubbles, but just above the airport the fields (see Appendix: *#2*) seem to have been worked after last year's harvest. At the end of a side track they were already ploughing and that attracted a lot of Glossy Ibises, some Lesser Black-backed Gulls and only a hand full of godwits.
The godwits were a bit sketchy and took off when we came closer. Another group cooperated better and let us read the first rings of the trip.

The main group however was – based on the transmitter data – located in the SE area (see Appendix: *#1*), opposite of the airport. We only encountered a locked gate with a small group of godwits foraging in belly deep water behind it. All in a sudden a bit further a huge flog took into the skies, disturbed by a Bonnelli's Eagle. This should be the main group, but not accessible …..

Bonnelli's Eagle

We decided to go back to the office, to see if we could acquire a key of the gate. At the office, no staff anymore, but after a phone call, it became clear that they could not give us access to this part of the fields.
A WhatsApp conversation with Jose Alves however gave us the information that there was another road to this area and that one should not be blocked. Jose (and team) used it last Friday during a very successful catch (~100 birds). This catch also explained the few very shiny rings we already saw.

After a quick shopping for our lunch, we followed the instructions of Jose and indeed found the track and could access the area without any problem. The large group (quick estimate of 30.000 birds) was resting in belly deep water, but we managed to read some rings.

Godwits at the main sleeping area (#1) resting in belly deep water

Just after noon the birds started to fly off in the direction of the airport and the ploughed fields. After our lunch we followed them and indeed found multiple groups now foraging (and some sleeping) on the ploughed fields with their legs well visible. The ring count in the BirdRing app increased steadily.

We stayed with the birds until the sunlight became too tricky to read the colours reliably. This gave us the opportunity to check the gulls (mainly Lesser Black-backed) and Glossy Ibises that followed the tractor that was ploughing. Not many rings to note down. On our way back to the godwits – just a few fields further – we discovered a nice group of Spoonbills and some of them were ringed.

After sunset we used the last light to scan a very large group (~10.000) of godwits that was foraging on one of the freshly ploughed fields for the last rings of the day. With dusk now setting in, we went towards the Cardal gate, as that is the only one operating at this time. On our – a bit extended – way, we could note down three species of owl. A nice end of a beautiful first day.

4 February
Sunny day, some high clouds, N 2 Bft wind, max. 16 C
Total amount of godwits: ~ 35.000

We started our day where we left de godwits yesterday (*#2*). Some nice groups were still/again present. At first a bit sketchy, but soon we could stand with the car next to them and read a lot of rings. When they started to sleep – around 11:30 AM – we moved to the main sleeping area in the SE corner of Ponta d'Erva (*#1*). Here was again a group of +/- 30.000 birds present, although almost all sleeping (on 1 leg of course).

When a large military plane flew over at low altitude, almost 2/3 of the group went north, while the rest came back and continued sleeping. As we needed our lunch, we went to Porto Alto for some shopping and did a field lunch at the rice fields of Samora Correia. These fields were not (yet) attractive for godwits. Only 1 field was being ploughed, the rest all with stubbles.
There were also not many Black-crowned Night-herons present. We could only found 2 birds. Maybe a fisherman in a boat on the stream had disturbed them on his way upstream.

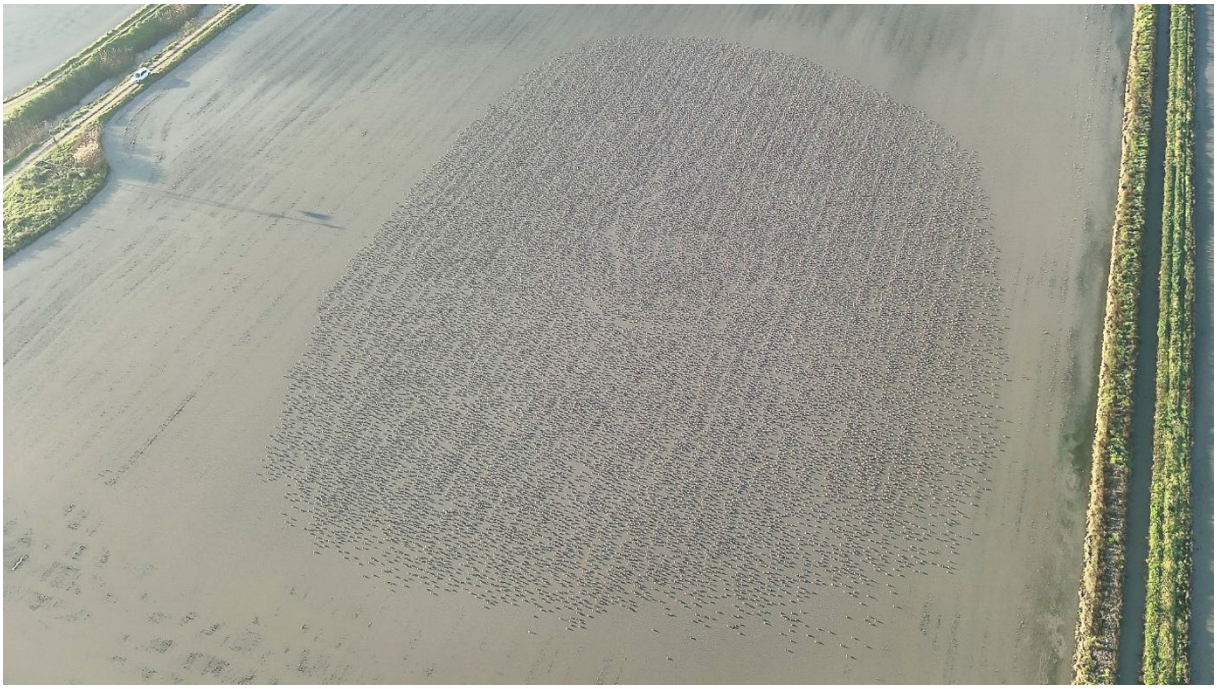
After lunch we went back to Ponta d'Erva fields. Before we reached the godwits, two Booted Eagles gave a nice show in the air. Luckily far enough from the godwits, so they were not disturbed.


Booted Eagle (dark morph) nicely posing

Back at the godwits, we drove field-by-field and read all the godwits we could find. Of course, next to the ring reading, we took various colour ring density samples. We kept doing this until the light faded.
It turned out to be a very productive day. We could read both more than 170 godwits (in total 216 different individuals amongst all projects), various Lesser Black-backed Gulls, 1 Common Redshank (from Afonso) and some Glossy Ibises.

5 February
Sunny day, some high clouds, NE 1-2 Bft wind, max. 18 C
Total amount of godwits: ~ 35.000

As the road to the track north of the airport was blocked by workers who were about to transport the tractor to the next fields – this track is now completely ploughed – we started at the main sleeping site. Here we encountered Afonso Rocha who was counting the resting godwits with a drone. We could read some rings, but as the birds were mostly resting on one leg, it was not great.



Drone image of the day-time roost; ©Afonso Rocha

After a while we moved towards the foraging location and could do some reading. As the numbers were not high, we decided to check other parts of the rice fields to see if we could find more birds. Instead of godwits, we encountered a large group of Spoonbills (*near #7*), with 1000 exx. there should be ringed ones amongst them. We could indeed read a series of rings here, but as the birds were mostly standing in deep water it was not that easy.

Around 11:00 we went towards Samora Correia to collect the key to the Belmonte rice fields at the office of Companhia Das Lezirias by Rui Alves. After collecting the key and some lunch, we went to Belmonte. The fields were ploughed and wet, looked like good habitat for godwits, but none to be seen. It might be that the ploughing was already done a while ago, because no machinery to be seen. The north side of Belmonte - seen from the fence between the two parts of Belmonte - looked totally different. No ploughing at all, only bare stumbles on all the fields.

After having lunch between the oak trees, we went back to the Giganta rice fields. First, we checked a spot (*near #*6) Afonso texted us where he encountered 10.000+ birds. The birds were indeed still there but mostly resting and in bright backlight.
We decided to go back to the track north of the airport where we found large groups foraging and resting on the fields. This gave us a new chance to read a lot of rings and do density samples. We stayed almost till dusk. In the last sunlight we checked the spot of the Spoonbills again, they were still / again present and potentially will sleep here. A place to go back the next few days.

6 February
Sunny day, some high clouds, E 2 Bft wind, max. 18 C
Total amount of godwits: ~ 1.700

We planned our (first) Sado day today and left early. Just after sunrise we arrived on the south bank of the Sado river (#8) where – according to the transmitter data – "Vogelkooi" should be present. From previous visits we knew that this part of the Sado was hard to reach, but we found a (public) way to the rice fields and indeed discovered the bird. Unfortunately, it was resting in belly deep water with around 100 others. The Greater Flamingo in the next field/pond gave better views of their legs and we could read some rings.
Next stop was a bit south of Comporta to check if we could find two transmitter Spoonbills. Here again too deep water prevented us from reading any rings. So, to the main site, the Comporta rice fields.
The fields at the south – close to the village – were already ploughed but completely flooded and only hold a few godwits. A bit more to the north (central section) the fields seem to be perfect – freshly ploughed and only a little water - but no godwits to be seen. On a field where they were busy ploughing, we could read a few gulls, but again no godwit to be seen. At the north section of the rice fields, the fields were still not ploughed and not suitable for godwits.

At the northern most tip of the peninsular we scanned the Sado estuary for some species we saw recent years, but now only the Red-breasted Merganser and Black-necked Grebe were present. As it was high tide, also the waders were absent in this part.
When we drove back, all in a sudden we saw a group of godwits in the field next to where they were ploughing (*#9*). This group – around 1.100 birds – was foraging and we managed to read some rings, although the density was not as high as in Giganta.

After this surprise we moved on to the rest of the rice fields, but did not encounter any godwits nor Spoonbills. At Alcácer do Sal we bought our lunch and moved on towards the bridge at Setubal road. As the tide was going out, the river was low and waders were foraging. But no godwits here.

After eating our field lunch, we moved on towards some (old) fishponds along the north side of the Sado river. At one location (#11) we spotted 110 sleeping godwits and that was it for the day. We checked some other spots, but as the water was still very low, all the birds were foraging at quite some distance and no rings – except for 1 Spoonbill – to be seen.

Although the number of godwits was not as high as last year, it was again a nice visit to the Sado estuary. Tomorrow – if the predicted rain doesn't play against us – back to the large numbers at the Giganta rice fields.


Low tide at the Sado estuary.

7 February
Mostly clouded, some rain showers, W 3 Bft wind, max. 18 C
Total amount of godwits: ~30.000

When we drove from our holiday house towards the fields, it started to rain a bit. We first tried to enter the area north of the N10, but the keycard didn't work. As the office was closed, we couldn't check / change this. Something to do later.
With the north closed for us, we first checked the fields in the north of Giganta (*#4*) where they were now ploughing. We found some nice groups, along with Lesser Black-backed Gulls and Glossy Ibises, but the wind was in the direction of the car and with the rain intensifying, it became too wet to stay. So, we went to the track north of the airport where we encountered some nice groups of godwits. Also, they were foraging on the right side of the track, so even with the rain we could observe them. When the rain stopped, most of the birds flew off towards the northern fields after some panic (cause not seen) and we decided to follow them. We found them in the freshly ploughed fields (*#4*), fanatically foraging. They gave us great opportunities to read a large number of rings. Next to plenty of godwits, we could also read three Lesser Black-backed Gulls and some Glossy Ibises of which three with red rings (a Portuguese scheme) that we didn't encounter before.

Around lunch time the birds started to settle in for a siesta and we decided to pick some lunch at Porto Alto and visit Alcochete. The water was going out and just low enough to let the first birds forage at our lookout point near Sitio das Hortas. We could read two Spoonbills (of which one transmitter bird) and saw a series of new wader species for the trip.
Unfortunately, the rain started again and we were forced back into the car and decided to check the fishponds / salt works. Here – to our surprise – we found a small group of godwits foraging, the reported Red-knobbed Coot we couldn't find (mainly due to the horrible weather). We did a quick check on the rice fields near Barroca de Alva where we saw a large group of Flamingo last year. This

year the fields were ploughed and no Flamingo to be seen. Although suitable for godwits, they were not present.

Back at the Giganta rice fields, the rain had stopped and the sun even came from behind the clouds. The godwits were still foraging at the same spot and we could read plenty of new rings. We stayed till almost dusk. After a quick check for the Spoonbills we had seen before – they were still present – we found a new night roost for the godwits in the Cardal area (*#6*). We estimated around 22.000 birds. As we were curious if these were the same as we left foraging, we got back to the northern fields of Giganta. The numbers there were low (around 8.000 birds), so most likely most had left for the (new) night roost.

8 February
Partly clouded, W 1 Bft wind, max. 18 C
Total amount of godwits: ~40.000

We started the day at the new nighttime roost we discovered yesterday in the western part of the area (Cardal entry). We found indeed a nice group of birds distributed across some fields that were all full of water. Most of the birds were standing till their belly in the water, so not much legs visible. Some fields further (*#5*) the conditions for reading were a bit better, but the birds wouldn't allow us close. But we both managed to get some rings.

At the foraging spot of the last days – northern part of the Giganta gate area – almost no birds were present. Did they eat all the rice in two days? At the track north of the airport we found a nice group again. Most were already resting, but enough were foraging to give us the opportunity for ring reading and density samples.

Foraging godwit with remarkable white patches on the head

We drove to Porto Alto to get our field lunch and headed back to the Ponta d'Erva gate. After a quick check of the old (?) roost at the SE part (*#1*) – some 4.000 birds still present – we had lunch at Ponta d'Erva. But with the tide at its highest, not many birds to see.

A quick check of the Spoonbill location resulted in zero Spoonbills ….. they seem to have another day-time roost. The godwits in the Cardal area were still present, but again mostly in too high water.
The birds at the track north of the airport cooperated better. Although still most of them were sleeping, enough were foraging and they kept us busy for a while.

At the opposite side of the track the ploughing was now going on. A lot of Lesser Black-backed Gulls and Glossy Ibises, but no godwits (yet?). We managed to read three ringed LBB Gulls and some ibises. With the last 45 minutes of daylight left, we decided to check the Spoonbills again. This time we had more luck. Around 650 were present and a lot of legs were visible. We managed to read 16 ringed birds and concluded our day here.

9 February
Mostly clouded with some sun late afternoon, VAR 1 Bft wind, max. 18 C
Total amount of godwits: ~40.000

We started at the west side of the area to check the night roost and hopefully some foraging birds. Most birds stood again till the belly in water not giving us a chance to see any rings. On one field we found a nice group foraging with visible legs. The light wasn't good due to the cloudy (almost foggy) weather, but we managed to read some rings.
As we had expected, some loud bangs announced that the hunters were also awake an started their Sunday of hunting. Of course, these bangs caused panic at all the birds. Together with the herons (mainly Shovelers) - that share the night roost with the godwits – almost all godwits took off. Some returned, but most disappeared. Those returning, gave us some more rings to read.

To see if we could find the birds back, we made some loop through the area but couldn't find any new spots. At the track north of the airport, we found a series of fields filled with godwits. This time the lack of sun was into our favour as we could read well on both sides of the track, delivering a nice number of ring readings. We stayed until lunchtime.

Lunch we eat at Belmonte. As we already knew the state of the rice fields, we stayed in the oak and pine forest to get some new (other) birds for the trip. With the sun starting to shine a bit, the birds were active and we indeed managed to get some new species for the trip (Long-tailed Tit, Mistle Thrush and Crested Tit).

Back at the rice fields we found the group foraging at the recently ploughed fields at the east side (*#3*) of the main track to Ponta d'Erva, just opposite of the track where they used to be. This gave us new opportunities to read a lot of rings. Besides the godwits also a few Lesser Black-backed Gulls and Glossy Ibises showed their rings. After getting to many double entry warnings from BirdRing app, we decided to move on. At the opposite side, no godwit to be seen. Most likely due to a Peregrine Falcon (female) hunting. She tried to get a Glossy Ibis, but at the end the ibis (a ringed and transmittered bird) won.

At last, we checked the Spoonbill night roost, but only one was already present. Most likely the birds were still foraging as the tide was just lowering. With no rings to read, we drove toward the most SW point along the Tagus River. Here we discovered at some distant fields (*#7*) a group of at least a few thousand godwits. As it was too late to check the track towards it, we will check tomorrow.
With the sun setting behind Lisbon, a Bluethroat started to sing its first notes and even a Water Rail "screamed" from the reeds. This was a new species in Portugal for us both.


Sunset at the Tagus river

While driving back towards the gate, we discovered some Spoonbills had returned to the night roost. Now counting around 180 birds, with new ones arriving in small groups.

10 February
Partly clouded, S 2 Bft wind, max. 18 C
Total amount of godwits: ~35.000

We started at the Ponta d'Erva entrance where we left the godwits yesterday. They however were not at the recently ploughed fields. Only gulls and ibises followed the tractor that was already ploughing. We met with Mario Huizinga (from the BirdRing app) who just arrived last night from a trip to Spain. We shared our experience from the last week and the spots where we had godwits.

We continued our day at the track north of the airport where we indeed found godwits. Most of them resting, but a good amount also foraging and showing legs. Here we also met with Astrid Kant and Roland Messemaker, who arrived last night from The Netherlands and will now also chase the godwit rings at Giganta. Again, we updated them on the best godwit locations of last week, but with no guarantees, the birds seem to constantly change from feeding locations.

We moved to the place in the south of the Cardal area where we discovered a group last night. The group was still present, some sleeping, some foraging. At first in a bit deep water, but a Marsh Harrier helped us and chased the birds to a field with less water. Here the reading was good. In total we estimated this group around 5.000 birds.

Next check were the fields in the north of Cardal where the birds were yesterday the birds were chased away by the gunfire of the hunters. Here still no godwits to be seen, but a nice group of Lesser Black-backed Gulls gave us some rings. As Astrid and Roland drove by, we pointed them towards the group in the south and wished them luck with reading.

We did lunch shopping in Vila Franca de Xira and headed to Carregado to check the fields over there (all not ploughed and no godwits) and have our field lunch. The hoped for Red-legged Partridge we saw here some years ago, didn't show up. However our first Merlin of the trip still added a new species to the triplist.

Around 15:00 we were back at Giganta, where we first checked the fields close to the N10. At these fields the godwits were foraging a few days ago, but they seem to have lost attraction, as (just like yesterday) no birds present. We found them back at the track north of the airport where a Peregrine Falcon must have chased them to one field. Here they started foraging when we arrived and we spent the rest of the daylight reading the rings and do some density samples. The alarmed Mario, Astrid and Roland joined the party and so three Dutch teams were monitoring our national bird in the rice fields of Portugal.

B2BLLR foraging in late sunlight

11 February
Morning rain, afternoon sunny with a few rain showers, VAR 3-4 Bft wind, max. 18 C
Total amount of godwits: ~40.000

As we reached the fields just after dawn the rain started and visibility was poor. We could only check birds on the north side of the car without getting wet. We found some groups at the usual track, but the light was that poor that we could hardly read any rings at a bit distance, let alone code-flags. The other side of the main track, where the ploughing was going on, didn't deliver any godwits. Only gulls and ibises were following the plough.

We decided to check the Spoonbills as they should stand on the correct side of the car and they indeed did. We first saw a small group (~100 birds) and thought this was all. As they had visible rings and indeed the rain was hammering on the correct side of the car, we enjoyed the reading and shared some pictures in the app-group. When we moved on, we discovered this was only the first

(and smallest) group. The others (~1000 birds) were standing two fields further. As soon as the rain stopped for a while, the birds became active and flapped their wings to get rid of all the water. This moved the group around, showing us new legs with rings. At the end we noted almost 60 different ringed birds.

Spoonbills in the rain

With a message from Astrid and Roland that they found 10k godwits near the N10, we decided to head that way and have a look. We however bumped into a nice group of foraging birds in the north of Cardal ourselves. This group was again on the right side of the car, giving us an opportunity to read their rings while keeping (relatively) dry. Next to the godwits, we could also read some Lesser Black-backed Gull rings.

Around lunchtime we headed to Vila Franca de Xira to do our lunch shopping and had our field lunch on the bank of the Tagus River. Most of the lunch we could eat in nice sunshine until dark clouds appeared again and so did the rain.

Next stop was the location pointed by Astrid and Roland, but the birds were foraging some fields from the road and with the rain still in the air, we didn't want to go outside of the car. A quick check at the tracks just north of the airport, didn't bring us many godwits. The roost at the SE corner of Ponta d'Erva did hold some 5.000 birds, but all sleeping in too deep water. The same was unfortunately true for the group in the south of Cardal (~2.000 birds) and for the group in the north of Cardal (~25.000 birds). All godwits seem to have decided to have an early bed and/or very long siesta.

With no foraging godwits around, we moved our attention to the gulls and ibises and managed to read some ringed individuals before it became too dark.

12 February
Sunny day with some clouds, NW 2 Bft wind, max. 18 C
Total amount of godwits: ~45.000

We started the day with a visit to Comporta as we heard from Mario that he saw around 5.000 godwits there a few days ago. We indeed quickly found the group at one of the first rice fields of the Comporta area (*#10*). Unfortunately this field had belly deep water and the birds were also still sleeping. We managed to read two ringed birds, but that was it. We decided to check the rest of the area and come back later.

Due to the rains of yesterday, the tracks in the area were pretty bad. We couldn't reach the north end of the rice fields as we were afraid to get stuck. Till halfway of the fields, no other groups of godwits to be seen, so back to the sleeping group. These birds were still sleeping and didn't show any sign that it would change soon.

We decided to have a look at the ocean side. Maybe there were some new birds for us to get. And indeed within minutes from looking over the ocean some Gannets could be noted. Also a nice adult Audouin's Gull was new for us in Portugal. Besides a very quick view of a Storm Petrel spec. by Kees, nothing exciting happened. Seen the time of year and of the day (already around 10.30) that was not surprising.

Back at the rice fields, the godwits were still sleeping. So we decided to call it a day at Comporta and drive back to the Giganta area to see some more godwit activity. Via a lunch stop at the Zambujal bridge – that delivered a few ringed Pied Avocets – we were back in Giganta around 14:30.

Here we first checked the fields that were recently ploughed at the Ponta d'Erva area, but only a "handful" of godwits (~2.000) to be seen. At the opposite track – our regular sighting area – we indeed found a very nice group that just started to forage. The ring density was high and the reading flowed into the BirdRing app, until a Booted Eagle tried to catch a godwit. No success for the eagle, but all godwits panicked and didn't return. So we had to find them again.

We headed to the Cardal area where we knew also some freshly ploughed fields that had good numbers yesterday. We directly found them on a field without much water. We estimated around 8.000 birds foraging on one field. The party lasted however way too short as a Booted Eagle (the same?) flew overhead and all the godwits took off again.

C2PGGP a Godwit with a transmitter on its back

This time they landed a few fields further at the main day (and night?) roost. But these fields had belly deep water, so not much luck with ring readings. After a while the first birds took off again and landed in some other fields with less water. Here we could see their legs again and discovered this group had a lot of code flags in it. As we almost finished checking all the legs, more and more birds came from the roost and started feeding. A lot of new legs to check and a good number of rings that could be noted.

The last half hour of daylight we used for reading birds that had returned to the first field of the track. Again a field full of godwits (estimated 8.000 birds) and a lot of rings.

In total we estimated the godwits in this area around 40.000 birds. With certainly birds still in Ponta d'Erva area and most likely a smaller group in the south of Cardal, we now estimate that there should be between 50-60.000 birds in the Tagus area and maybe a 4-5.000 in the Sado area.

13 February
Morning dense fog, afternoon sunny, S 2 Bft wind, max. 17 C
Total amount of godwits: ~35.000

As soon as it became a bit light, we saw dense fog already in Salvaterra de Magos. Not a good sign as this usually means even denser fog in the rice fields. We decided to slow down a bit, drink an extra cup of coffee and depart later than normal.
But even with this slow pace, the fog had not cleared as we entered the rice fields. Luckily some godwits were foraging pretty close to the track at Cardal and we managed to read some rings. After we checked all the fields at this track, we moved on to see if we could find some other fields with godwits close to the road. But the fog was dense everywhere and almost no godwits to be seen.

The last godwits of the trip in the last daylight with the moon already rising

Only around 11:00 the sight got a bit better and we could see halfway a rice field. This gave us some more rings at the Ponta d'Erva area, but reading was still tough. A hybrid Black-headed x Mediterranean Gull, ringed in Poland cheered us up a bit.
Around 12:00 the sun finally won the battle with the fog and visibility got better. But as usual, this was also the time for most of the godwits to go for a siesta ….. Time for us to go for lunch.

Around 14:00 we were back at the Cardal area where some birds were foraging again. But this didn't last long as a Marsh Harrier disturbed the birds and they all flew to some deep-water fields where the roost is located these days.
We moved on towards Ponta d'Erva again. Here on freshly ploughed fields, we found a nice group foraging. Reading was a bit tough as there were still a lot of stubbles left. Around 16:00 we moved back to Cardal were – as we hoped for – the godwits started to forage again and gave us a good opportunity to read the possibly last rings of the trip.

Tonight the second team will arrive and depending on the fog we only have tomorrow morning for some ring reading.

Portugal Team 2: Bob Loos and Jouke Altenburg, 13-27 February

14 February
Dense fog in the morning, sunny with cloud fields from 10 am, S 2-3 Bft, max 17°C

For once, it's not a big deal if you're not right next to the Black-tailed Godwits early in the morning, as visibility is less than 100 meters, but it would be nice if this remained an exception!
Today we made our first round through Cardal and Ponta d'Erva. Roughly three-quarters of the rice fields were either marshy or completely flooded. Ploughing was taking place at two different locations, resulting in clouds of Black Ibises and hundreds of Lesser Black-backed Gulls, which feasted on the American crayfish. Black-headed Gulls kept a close eye on the ibises; as soon as an ibis caught something, it was immediately chased by several screeching gulls, which regularly successfully captured the ibises' prey. We haven't observed kleptoparasitism in Lesser Black-backed Gulls.
We don't yet have a good idea of concrete godwit numbers, a task for the coming days. Surprisingly, the first color-ringed godwit we read turned out to be a Finnish one. Several Marsh Harriers were seen, just female/juvenile type, a single Kestrel, one Osprey and above the grasslands in the western part of Cardal a female/juvenile Hen Harrier.

Almost every advantage (no wind) also has a disadvantage……

15 February
Completely cloudy, no fog, SE 2-4 Bft, max 17°C
Estimated total number of godwits: 12,000

Short but sweet; almost 10 hours of uninterrupted leg-watching. First in Cardal, where the birds were in different rice fields than yesterday, and then all afternoon in Ponta d'Erva along the chain road closest to the airfield. At the latter location, there were approximately 10,000 godwits, over 95% of which were sleeping. Around 16:00, a larger number began foraging, so we were able to properly check for rings on an estimated 10-15% of the birds. This resulted in 137 readings, including 16 code flags. From 17:30 onward, groups began to arrive from great height, so that by 18:05 we estimated 12,000 Black-tailed Godwits were around. The flock was disturbed only once. We were unable to determine the reason for this. Until early afternoon, at least one tractor was ploughing, resulting in the familiar large flocks of Glossy Ibises, Lesser Black-backed Gulls, and Black-headed Gulls.

16 February
Completely cloudy, clear spells in the afternoon, N 2-3 Bft, max 17°C
Estimated total number of godwits: 19,100

Spent the entire day, from 8:15 am to 18:15, exploring the chain roads in Ponta d'Erva. At noon, the number of godwits was estimated at 15,000-20,000, of which more than 95% were asleep.
During the lunch break, we checked the only tractor ploughing in Ponta d'Erva, which resulted in about ten color-ringed Glossy Ibises and even one radio tagged bird. Among three Little Stints, one was color-ringed last year at Samouco saltpans, Alcochete on October 20. At 17:15 we estimated the number of godwits at 19,100; this number was quite consistent with our estimate from around noon. A Bonelli's Eagle flying overhead caused a brief panic, while a small commercial aircraft, originating from the small airfield in the rice paddies and flying at less than 100 meters above the resting group, produced no visible reaction. The hunting sounds from the Porto Alto area regularly triggered a brief startle. In addition to the first metal Arnhem ring read, the third Finn was also noted.

Flowering rice, never seen before in this time of the year

17 February
Dense fog until 12:40 (visibility max. 100 m.), then completely cloudy, SE 1-2 Bft, max 15°C
Estimated total number of godwits: 25,000

Fieldwork can also be frustrating; first, we waited nearly two hours along a reed edge in the mist until the dense fog had lifted. Immediately afterwards, a Buzzard flew over, causing all the godwits to forage further away. At 15:00 we estimated 2,700 godwits in the westernmost rice fields of Cardal, over 90% of which were sleeping. From around 15:30 we moved to the southernmost chain road, where a very rough estimate of 25,000 godwits were present, of which at most 5% was foraging. Traditionally, the number of foraging birds, and thus our readings, increased during the afternoon, resulting in, among other things, 13 code flags, three of which we had already seen earlier this week. Along the northernmost chain road (the first), the fields on both sides of the road were completely green with young rice plants, some of which were in the early stages of flowering. We had not seen this before in previous years.

18 February
Completely cloudy, after 14:00 (light) rain, SE 2-3 Bft, max 16°C

A rather unremarkable day; in the morning we checked the chain roads near Ponta d'Erva, where the birds were noticeably more restless than the previous days, resulting in a considerable movement of both the godwits and the readers. We checked Cardal at noon, but no godwits were found there. We checked the chain roads again until it started to rain, noting 13 code flags, 11 of which were new to us. This confirms the impression that, despite the considerable number of hours we spent on the chain roads over the past few days, we were still able to scan a (very small) number of the godwits for rings. Every day, including Sundays, we only see one tractor ploughing, but today we also saw the first seed drill at work.

19 February
Cloudy and sunny, ESE 2 Bft, max 19°C
Estimated total number of godwits: 55,800

At 7:30 am we started the full count of Giganta ricefields; we counted the fields around the three chain roads (23,750-27,725) while Pete Potts and David counted 5,000-6,000 in Cardal. Afonso Rocha simultaneously flew a drone over the entire Tagus rice field area (53,820-57,795). Ring readings then focused on the chain roads. A Barn Owl with prey, probably a field vole, at about 25 meters, formed the beautiful finale of the day as dusk fell around 18:15.

20 February
Until 14:00 pm dense fog, then cloud fields, S 2-3 Bft, max 19°C

Due to the persistent fog, we only had four hours in Cardal and along the chain roads to take ring readings. Nevertheless, we managed a total of 141 readings, including 20 code flags (16 new).

21 February
Completely cloudy, from 14:00 rain (9 mm), S 4-5 Bft, max 17°C
Total number of godwits: 20,000

The first seven days saw virtually no wind; that made reading inscription flags much easier, but today there was noticeably more wind. Along the central chain road in Ponta d'Erva, two tractors ploughed simultaneously: a playground for Glossy Ibises, Lesser Black-backed and Black-headed Gulls.
The adjacent rice fields, ploughed yesterday, attracted at least 20,000 godwits, who continued to forage around noon, unlike previous days when most of them rested or slept in the middle of the day. Extra fuel for the upcoming departure? Jos reported a considerable number of arrivals in the

Netherlands yesterday, where the first rings have already been read. Fortunately, the rain arrived two hours later than predicted, so we were able to achieve approximately 180 readings together, including nine flags (eight new), as well as two Finns and one Norwegian. She was ringed as a chick in Rogaland on June 5, 2023, and read in Giganta ricefields in February 2024. “This bird is one of the last chicks produced by the South Norwegian godwits. In 2024, probably no godwits had successful breeding in Southern Norway." A solitary Spotted Redshank among the godwits was a strange sight. We once witnessed an unsuccessful attack by an adult Peregrine. Otherwise, overflying Marsh Harriers were the only visible source of disturbance today.

22 February
Morning fog, followed by rain showers (0.6 mm) and clear spells, sunny in the afternoon, NW 3 Bft, max 16°C
Estimated total number of godwits: 21,300

In the morning, we searched for godwits and Spoonbills in Belmonte, but except for about twenty Black-headed Gulls, three Greenshanks, and a single Lapwing, the predominantly wet rice fields were completely empty. This was as expected. The Global Flyway Network website showed no recent plots of tagged birds in Belmonte. Around noon, 17,600 godwits were seen along the middle chain road, with the traditional picture again today: >95% were asleep. After 2 pm we drove a circuit around Cardal to the Tagus bank with a total of 3,700. The numbers seem somewhat lower than in previous days. This picture would fit the Dutch picture, where the godwits have now flooded in, according to Wim Tijsen. Worthy of note were the 400 Avocets, foraging in belly deep water in Cardal.
After Cardal, we returned to the middle chain road, where more than half of the godwits were foraging. They were devouring not only grains of rice but also worms. Today, among other things, we read 16 flags, nine of which were new.

Belmonte: very beautiful landscape, but almost no birds at Belmonte

23 February
Dense fog until 12:00, then sunny, E 1 Bft turning to NW 2 Bft, max 18°C

Morning fog seems to be becoming a tradition. Around noon, it was a beautiful sight to see the fog concentrate over the Tagus, while the rest of the area bathed in the sunshine. Ploughing was business as usual, this time in the fields along the eastern central chain road. As soon as the plough left the rice paddy, the first godwits and ruffs arrived to forage. Unfortunately, despite much manoeuvring, we often experienced tough light conditions, which resulted in a bit disappointing number of readings today. The same applied for the number of flags read: four, one of which was known.

24 February
Fog until 10:00, then cloud fields, SSW > WSW 2-3 Bft, max 18°C
Estimated total amount of godwits: 12,300

After the fog had lifted sufficiently, we were able to get started on the central chain road in Ponta d'Erva, until a female/juvenile Marsh Harrier dove into the godwit flock, causing them to abandon the area. We couldn't find them anywhere in Ponta d'Erva, but we did find a male Hen Harrier and a Black-winged Kite. Around noon in Cardal, 8,500 godwits were roosting in belly-deep water.
The roost was disturbed several times, as a Bonelli's Eagle flew high over the flock. This was the third eagle species we saw this morning, after the Osprey and a light phase Booted Eagle. We returned to the chain roads without the desired result. The fields that had been frequented yesterday afternoon by godwits, gulls, and Glossy Ibises were now deserted. It's possible that a tractor mowing the edge vegetation (and not spraying it to death as Wim saw in Spain) was responsible. So back to Cardal, where at 16:55 we had around 5,000 godwits of 95% of which were sleeping. During the afternoon, the number increased with flocks from the south/southeast. At 6:15 PM, we counted 12,300 birds. It then became too dark to visit Ponta d'Erva to count, but we had he strong impression that the number of godwits has declined (significantly) in recent days. This certainly doesn't apply to the Avocets. We counted 533 in Cardal. Last Saturday, there were around 400. We could only read one godwit flag; a familiar one.

25 February
No fog, cloudy, sunny in the afternoon, NNW 4 Bft, max 17°C

In the morning, we spotted a small group of several hundred godwits along the central chain road. Then we headed towards Alcochete and Salinas do Samouco, where we counted 73 resting godwits, including a B2; naturally, on one leg. We only saw two Spoonbills, including a regular wintering resident here, color-ringed at Onderdijk (Noord Holland, The Netherlands). A color-ringed Ringed Plover, whose ringer unfortunately couldn't be identified, naturally caught our attention, as did several Flamingos. From 16:00 onwards, we were back in Cardal at the same location as last evening. The birds were very nervous; " Zugunruhe "? We had the impression there were more birds than the day before, but due to the high density of the flock, we didn't dare make a reliable estimate.
Two (new) flags were read today.

26 February
Sunny, NNE > WNW 2 Bft, max 17°C
Estimated total number of godwits: 6,200 – 7,000 (Sado) 11,100 – 12,700 (Tejo)

A tour of the Sado River. At 9:15, almost 3.5 hours before high tide, we arrived in Parque Merendas via the boulevard of the Setúbal industrial estate. But that was too early; the extensive mudflats contained, besides the common Lesser Black-backed Gulls and Black-headed Gulls, just a pair of Yellow-legged Gulls and an adult Mediterranean Gull. In the gullies, we saw a group of five Spoonbills: three immature and two adults, one of which was color-ringed on Schiermonnikoog and a well-known wintering resident in this region. A Slavonian Grebe moulting to summer plumage was the most memorable sighting, along with about ten Curlews, a species we didn't see elsewhere along the Sado River. At Moinho de Mare da Mourisca, the wooden pier was closed, so we only had a limited view of the mudflats. A Black Kite flying overhead only partially compensated for this. In the rice fields of Cambado, 6,200 – 7,000 (JA resp. BL) godwits foraged among noisy Pintails and less noisy Shovelers. Then we returned to Cardal, where the rice field sluices of the fields where we had seen the godwits in the past few days, were now open. As a result, more godwit legs were visible than in the past few days. At 17:40 we made our last estimate of the godwits this trip: 11,100 – 12,700 (JA resp. BL), a similar number to last Monday. The only flag we read today was seen already on the 14th.

Next year, together with the godwits again in the rice fields of the Tagus Delta?

27 February
Morning: very cloudy, later rain showers, SSE 3 Bft, max 13°C
Estimated total number of godwits: 11,100 – 12,700

A race against time; according to the weather forecast, it would rain at 11 (and it did!). We were ready before sunrise to stand by the promising rice fields in Cardal. And with success: a total of 55 readings in just three hours, including 10 inscription flags. Three Dutch Avocets in a flock of 500 were the dessert today, along with two locally color-ringed Black-winged Stilts. It's remarkable that we didn't encounter any grounded Spoonbills in Giganta during our stay, while the previous team even managed to capture a flock of around 1,000.

Spain Team 3: Wim Tijsen and Willem Brandhorst, 3-17 February

4 February
Maximum 19 °C, virtually windless, sunny and clear.
Total number of godwits: 0

This morning we first headed towards the visitor centre Jose Antonio Valverde. We haven't been here before during our previous research expeditions, but recently several tracked birds have stayed here. Probably because a lot of rainfall last autumn and winter, causing these areas to be flooded again. The entire marshland seems to be interesting for waders like the Black-tailed Godwit once more. The vastness of the protected nature reserve provides the birds with ample space to rest, and the food supply there has likely also improved significantly.
However, over the last one and a half weeks, there has been virtually no rain, allowing the unpaved access road to be quite passable, aside from a number of (very) bad sections. From the visitor centre, you can take the unpaved and dead-end road into the marsh area. Up to the point *'La Escupidera'*, from there you must return the same way.


Natural marshlands of Doñana were completely flooded

The whole area is significantly flooded. Plenty of herons and storks, but unfortunately, not a single godwit to be seen.... Data from the various transmitters show that the birds are further into the area, deeper into the marshlands. Invisible to the naked eye and not even visible with a telescope!
We have thoroughly searched the whole area between Villamanrique de la Condesa, the visitor centre, and Isla Mayor. The many rains from the past period are also very noticeable there. A lot of rice fields are completely or partially under water. According to the transmitter data, godwits have also been present here, mainly during the night hours. This may mean that the birds rest during the day in the marsh areas of Doñana and forage at night on the rice fields in the vicinity.
Unfortunately, there are also no godwits in the surrounding fields.

Then on to Veta la Palma. First to Lucio del Cuquero Grande, where about 15,000 godwits were counted a few weeks ago by our colleague from “BirdEyes”, Wouter Vansteelant.
Now there is so much water that a huge group of Flamingos is standing up to their knees. Estimated number around 3,500 individuals. Furthermore, there are Avocets, Stilts, and many Shovelers. But no godwits, not even along the shallower edges. The water level is too high for them. The same applies to the pond on the other side. The water level in Lucio del Cuquero Chico is also too high to attract godwits.

On the way to the office of the huge pond complex, we also encounter large groups of Flamingos in section F1 (see Appendix). We estimated the total number, including the earlier 3,500, to be about 10,000 birds.
Via the office, we drove up the main path of the fish pond complex. A lot has already been dismantled. All the fishing nets have been removed. Here too, the water level is very high, and we do not encounter any godwits. Even the Flamingos are not present; for them, the water level is evidently too high. We travel the main path for the most part, along the basins B1 to B6 and C0 to C6. As mentioned, no godwits and only a single Flamingo. However, there are quite a few ducks, including a group of about 100 Ruddy Ducks in C5.

Towards the end, the road also gets worse, and we decide to return due to the dangerous wetness. Then we can maybe still be on time at El Rocio.

That works out; around 6:00 PM, we are at the pilgrimage site, and in the pond in front of the famous white church, we encounter a small group of Spoonbills. Among them is one ringed in the Netherlands and one ringed in Denmark. Further along the pond, there are still some groups of Spoonbills, estimated number around 200-250. Too far away to read the rings.
Once again, not a single godwit, which is clearly because the water levels are also too high in this area. The count at the end of the day thus stands at zero.

Throughout the day, we encountered the following raptors in the visited areas:
- 8 Marsh Harriers (7x female/juvenile + 1x male)
- 1 Hen Harrier (1x female)
- 2 Ospreys
- 1 Buzzard

Nice observation: Red-knobbed Coot at the visitor centre.

Spoonbills in the pond at El Rocio

5 February
At start 3 °C, maximum 19 °C, moderate wind NO 2-3 Bft, cloudless
Total number of godwits: 0

First past El Rocio in the morning to see if there are now godwits in the pond in the centre of the village. There were several herons and some waders, but again no godwits. Then on to the large nature reserve around the mouth of the river Odiel, near the city of Huelva. Once there, we first visited the visitor centre *'Anastasio Senra'* and inquired about the best places to see godwits at that time. It turns out that most godwits are mainly in the north of the area. An area which is not freely accessible and where permission cannot be obtained at short notice to go in there unaccompanied. On this we searched the wide area, scouring, among others, Marismas del Odiel and the areas near Punta Umbria and Palos de la Frontera. Unfortunately, without results for discovering any godwits. And not even a colour ringed Redshank from Wim's research project, a pity although we checked hundreds!

At the end of the afternoon on the return trip, we passed by El Rocio again. We did see several ringed Spoonbills, but again no godwits. And not entirely coincidentally, this is where we meet our colleagues from previous black-tailed godwit expeditions, Jan Vegelin and Jacob Jan de Vries. They are now touring the area on their own in search of all kinds of colour-ringed birds. A little later, Mario Huizinga, developer of the BirdRing-App, also joins them and the Dutch enclave is complete! They too have so far, due to the high-water levels, been unable to detect godwits anywhere.

The famous white church of El Rocio. Lots of Spoonbills but no godwits at all, due to the high water levels after the rainy periods from autumn and winter.

6 February
At start 4 °C, maximum 19 °C, 1-2 Bft, cloudless.
Total number of godwits: 0

This morning to the Jose Antonio Valverde visitor centre again, hoping to catch a glimpse of the large flock of godwits which, as the transmitter birds indicate, must be staying in this area somewhere, but alas.
At the visitor centre, we speak to two managers. After explaining the RuG research and the reason for our visit, we are allowed up a viewing tower at the back of the building. From the roof of the visitor centre, this gives us a great view of the entire area. In the process, it is easy to see how wet the area is at the moment. Very far into the area, we see a large group of flying birds. Based on the flight picture, we estimate that these are waders, and thus possibly the large group of godwits.

Back at the administrators' office, it turns out that the area is currently not accessible due to the large amount of water. Only option is to do so by horse. The managers are happy, as they haven't seen the area this wet for years.

The fields in the wide surroundings of the visitor centre are also much wetter than in past years. We regularly come across fields that are partly or completely under water. We visit the fields that have been visited by transmitter godwits "*Gruttepolder'* and '*Mooie Nel'* in recent days according to the transmitter data, and take soil samples there. The soil samples should provide insight into the residue values of heavy metals and pesticides in a study by Wageningen University & Research for places where godwits have been foraging.

Throughout the polder from the visitor centre towards Isla Mayor, we encounter few waders. We do not see a single Spoonbill and only the occasional heron. In the late afternoon, we travel on to our second address in El Cuervo de Sevilla.

The footprints show us that godwits have been feeding here during the night.

Wim with 1 of the soil samples!

7 February
At start 7 °C, maximum 18 °C, west-southwest (WSW) 2-3 Bft, cloudless.
Total number of godwits: 806

As 'colleague' Mario Huizinga has visited the Brazo del Este twice in recent days and has not encountered any godwits there, we travel from our accommodation this morning to a nature development project near Trebujena. A small area bordering the river Guadalquivir. From there, we drive on to the Bonanza salt pans. We cannot enter the area by car and decide to explore a part of it by foot. After a walk of over 45 minutes, we come across our first 6 godwits, yeah! They are foraging along the edge of a salt pan. In the rest of the area, the water levels are too high everywhere for the godwits and here, too, the Flamingos are knee-deep in water. After this outing, we continue towards the marsh and salt flats near Chiclana de la Frontera, an area we visited for the first time last year.

Route to the Bonanza salt pans between Trebujena and La Algaida

At a viewpoint, a bridge along the A-48 motorway, we spot a large flock of godwits in the Salinas of Caño de Beatriz. There appear to be 800 of them. And finally, after three days without godwits and readings, the first colour rings are read here!

Glad that, as godwit researchers, we can finally watch a sizeable group after several godwit-less days, worthy of a 'snicker moment'.
On the way back, we see a few more, smaller flocks along the highway that we might watch tomorrow with Paco Hortas.

A nice 'snicker-moment' after finally reading the first colour rings of godwits!

8 February
At start 12 °C, maximum 21 °C, almost windless, completely cloudy at start, cloudless and sunny later in the day.
Total number of godwits: 890

On time this morning towards Chiclana de la Frontera at the Salinas of Caño de Beatriz for our appointment with Paco Hortas. He will accompany us, as he did last year, on our search for the godwits in this marsh area. He has permission to enter these closed areas. On arrival, from the viewpoint on the bridge, we can already see the group of birds we had left behind last night. The group now consists of some 600 or so birds. The three of us decide to approach this group via the public footpath first. This works fine and we can read a number of colour rings. While reading, about 200 more birds join the group. It is not clear where this group comes from.

During the ring reading, we meet the landowner. Paco explains in Spanish the reason for our visit. No problem and fine that we are investigating on his property. During the research, the group moves to an unfavourable location, where we suffer from a lot of backlights. Reason enough for us to move on ourselves.

That will be the spot where transmitter bird '*Indijk'* is staying, according to the latest transmitter data. A location along the A-4 from Chiclana de la Frontera to Puerto Real. The area is called Salina del Molino del Ocio and lies just below the town of Barrio de Jarana. It appears to consist of a jumble of small puddles and dams, so using Google maps, top consultation is needed to determine the best way to approach the godwits. Fortunately, the last signal from Indijk's transmitter was 15 minutes before we arrived. In the area, we find a group of about 90 godwits. With a code flag among them, a bird with RuG rings, and Yes!!! transmitter bird '*INDIJK'*. Interestingly, Indijk is part of a group of some 90 godwits and '*Indijk'* has not been with the large group of 800 birds in Salinas of Caño de Beatriz recently. So apparently there are some smaller flocks of godwits in the area.


Wim and Paco discussing plan of action

Time for lunch at our now traditional restaurant TreSalinas (Calle del Calamar, 50, 11100 Puerto Real, Cadiz).

After lunch on to Salina Marisma de Cetina and Salina La Tapa, where Paco has the key to the entrance gate. No godwits in either area, probably again due to the too high water levels.
Then back to Salinas of Caño de Beatriz, the area where we started this morning. The large group is still there. Some foraging and some resting. It is difficult to get a good view, and the light is also rapidly diminishing. Strikingly, smaller groups leave towards the southeast and drop in further down the road. At that time (17:45), the tide is ebbing, and Paco suspects that the birds are foraging near the Caño de Sancti-Petri River (Canal Principal).
This is notable because the birds then go foraging in the dark. This is similar to the behaviour of the transmitter birds in the Doñana (including godwit' *Gruttepolder'* and '*Mooie Nel'*) which show the same behaviour. Resting mainly during the day and then foraging in the evening. Nice to know, but not for ring readers.....

Paco tells us that management in the Veta la Palma leaves much to be desired at the moment. Since the fish farm stopped, water management has more or less been left to its own devices. According to Paco, the result of this is that there is a lot of water everywhere and therefore no longer different water levels. In addition, salt levels are rising due to lack of inflow of fresh water. This, in turn, would mean that the ponds are less attractive to waders and that you mainly come across Flamingos. That is also the picture we saw so far on our visit.

Today we saw 3x Marsh Harrier and 2x Osprey. We took 10 intake rates of foraging black-tailed godwit from the large group at Salinas of Caño de Beatriz:
(14, 17, 20, 11, 10, 10, 16, 16, 9, 16). Average is 14.

Sunset Cadiz

9 February
At start 8°C, maximum 18°C, almost windless, cloudless, sunny.
Total number of godwits: 900

On time today to Salinas of Caño de Beatriz to make the best use of the sun in the back. This appears to be working well. The group is not that big yet, about 450 birds. During the morning, the group grows to about 870 birds by the time we leave around 12:30. Interestingly, transmitter bird "*Indijk'* is also part of this group, while she was still at the other site yesterday. Also, a bird with a limping left leg that we saw in Indijk's group yesterday is now in this group. We read several RuG birds. It is unclear where the birds joining the group came from.

When we want to leave, we meet father and son, owners of the enclosed plots where the godwits are. We hand over another pack of 'stroopwafels' and a handwritten Spanish note asking for a phone number/email address to contact in case we want to return next year. The son indicates that we are always welcome.

We have lunch at a restaurant Paco recommended to us. Venta el Algarrabo - Puerto Real. A fine restaurant where locals also come on a sunny Sunday.
We then drive towards San Fernando and Cadiz. According to the website observation.org, godwits have been seen in several places here in recent months. But unfortunately, not today. We look at Salina de San Fernando and Salina de Dolores.
Then we look around in the area around the Caño de Sancti Petri River. This is where we saw birds leave for last night. This area can be reached via Carretera de la Playa del Castillo. But you cannot get a good view of the area or enter it. Unsuccessfully, we returned to Barrito Jarana, where we discovered '*Indijk'* yesterday. '*Indijk'*, of course, was no longer there, and most of the group had also left. Only 18 birds remain here foraging, including one codeflag which we cannot read.
Then on towards Salinas of Caño de Beatriz where most of the group is at the very back of the curve. Using the public path, we walk to the back to give the birds as much rest as possible. This succeeds and we can get pretty close and read rings. Towards dusk, we see several groups leaving again. Now in a different direction. We see them raiding near Salina de Vicario, Arroyo de Zurraque. So again, the

birds leave towards dusk for likely foraging spots for the night. Paco Hortas told us that these may be spots along the river that are currently dry due to the descending tide. Remember for next year!

10 February
At start 10°C, maximum 21°C, almost windless, start cloudy, during the day partly cloudy and light wind 1-2 Bft.
Total number of godwits: 840

This morning from El Cuervo de Sevilla to the Veta la Palma fishing ponds for a second chance before leaving for Extremadura. Last time we had no godwits there ourselves, but a day later Mario Huizinga had found some birds there. They were in box B5 then.

We now find the first group of 470 birds in B2. Against the edge of the trough on the side of B1 and the main road, in the corner birds are foraging in deep water. Resting birds are also standing very deep there. Still, after much fiddling, we managed to read several rings. Later, we find another group of 370 birds in C8. These are against the edge at the end of the last trough against the river.

Both the B2 and C8 have large groups of Avocets causing a fair amount of commotion. And as if that were not enough, a Marsh Harrier regularly passes by. In the whole area of the fishponds, we note eight times a Marsh Harrier and once an Osprey. Also striking are the large flocks of Grey Plovers. In Lucio del Cuquero Grande there are still quite a few Flamingos although the numbers are a lot less than last time, but again no godwits. We can't see everything, but in the tanks, we see (mainly A and B), the water level is still very high.

In tank B2, there is a group of 61 Spoonbills. In this trough also quite a few waders. Around 15:30 we leave the complex to head for Don Benito in Extremadura. Seven intake rates of foraging godwits from the group in B2 of Veta la Palma: (25, 18, 22, 24, 18, 17, 15) an average of 20.


Hiding behind a dike and split up for better view and more changes in ring reading.

Extremadura; 11 February

At start 10°C, rising to maximum 16°C, start heavily cloudy, rain from early afternoon until end of day. Wind 1-2 Bft.
Total number of godwits: 209 (200 flying, 9 foraging)

From Julián Cabello, researcher associated with the Spanish Black-tailed Godwit research at the University of Extremadura in Badajoz, we have been given a number of locations where godwits have been seen recently. These are mainly rice fields between the villages of Santa Amalia and Valdehornillos. Visiting these fields, we see an initial group of about 200 godwits fly by. That gives hope..., but unfortunately those also remain to be the only birds that morning.
We drive through many, seemingly suitable rice paddies, but it remains mainly with many Lapwings, Dunlins, Cattle Egrets, Little Egrets, some Spoonbills and many gulls of different species.

Around 12:30 pm, enjoying our lunch at Hernan Cortes, we see 9 godwits walking in front of us, in some flooded plots. And there appears to be one Spanish ringed bird among them. We manage to read the full code just before a heavy downpour erupts. A downpour that only stops at the end of the afternoon.

During the day, we see several farmers busy ploughing rice fields. We hope those ploughed fields will be attractive enough for godwits. So that will be our first goal for tomorrow.

12 February
At start 8°C, maximum 15°C, at start slightly cloudy, during the day moderate wind 2-3 Bft.
Total number of godwits: 764

Team Badajoz together with team RuG

This morning we discussed with Julián Cabello who will visit which part of the study area to work efficiently for a good count of the whole area. We will start in the west and Julián will go with Ãngela Fondón to the rice fields in the east near Obando, Vegas Altas, Palazuelo and Hernan Cortes. The idea is to work towards each other for a complete census of the vast rice field complex. Julián and Ãngela do not encounter a single godwit.
We go to Valdetorres and Yelbes and no birds there either. As a last option, there are a few small rice fields near Almoharín.
And right there at some rice fields that are flooded, we encounter lots of waders. Besides 764 godwits, there are also 1,000 Golden plovers, 300 Ruffs and large groups of Lapwings and Dunlins. Everything is together and when they start foraging, mixed together. It turns out to be a very quiet place with little traffic. A place where you can take good positions from several sides to read the rings.

While reading, some of the waders occasionally take to the air. Especially when the Marsh Harrier comes over. It seems that this is the only (large) group of godwits in the whole area for the time being. Julián and Ãngela will check where this group spend the night, in preparation for a possible trapping attempt.

13 February
At start 6°C, maximum 20°C, at start slightly cloudy and a little fog, during the day almost cloudless and windless.
Total number of godwits: 888

Straight to the rice fields near Almoharín this morning to see if the flock of godwits is still there. And it is. A whole field full of waders, including a total of 888 godwits, 593 Ruffs and also Golden Plovers, Lapwings and Dunlins. All staying in the same field almost all day. Occasional Golden Plovers, Lapwings and Pied Sandpipers in particular go up. Remarkably, no raptors pass by during the day, with the exception of a Red Kite.

The White Stork witnesses the 'lazy' godwits under sunny circumstances

The godwits are resting for a long time, especially during the middle of the day when it's getting warmer. There is some feeding, but it has more the character of snacking than real foraging. The idea is that real foraging happens in the dark. Unclear is where that takes place. We once again managed to read many rings, including just over 20 RuG rings. There are a number of new combinations compared to the previous day, but not too much, so it must be a steady group.

In the afternoon, around the rice field, manually, the weeds along the edges are sprayed. Therefore, we took two soil samples, from both the edge of the basin and from the rice field itself.
10 intake rates of foraging Black-tailed Godwit in the rice fields near Almoharín: 8, 12, 12, 5, 8, 5, 9,11, 12, 9; average 9.

14 February

At start 6°C, maximum 20°C, slightly cloudy, during the day almost cloudless and windless.
Total number of godwits: 900-1000

This morning we first visited some potential foraging/resting sites around the villages of Hernán Cortes, Santa Amalia and Valdehornillos. East of Valdehornillos, we encountered only 10 godwits. Furthermore, another flying group of about 50 to 100 birds that we cannot find back again in the surroundings fields.

Again, we came across a number of rice fields that have just been ploughed or are in the process of being ploughed. These are normally the godwit's favourite spots but we do not encounter them there now. Still, most of the rice fields have yet to be ploughed.
Around 12:00 we arrive at the group in Almoharín. At an initial count, there are nearly 700 godwits in the same rice field as the days before. During the afternoon, some 150 more birds join the group. Birds approaching very high in the sky from a southerly direction. Perhaps new arrivals?
Jorge Gutiérrez and Ãngela Fondón from Extremadura University are also present. After our meeting, they checked the area around Yelbes. However, without result.

Until late afternoon, we observed the steady group at Almoharín. Like yesterday, the birds are mostly resting. At the end of the afternoon, the group starts to move a bit. There is some feeding by some, but it is usually only very short and not very intensive. Yesterday's low intake rates show that too. The plumage is preened before resting again.

A few times the group flies up, mainly as a startled reaction to a group of Cattle Egrets. Overflying Buzzard (1x), Marsh Harrier (1x), Red Kite (2x) and Booted Eagle (2x) are watched but that's all.

15 February

At start 8°C, maximum 19°C, light to cloudy, almost windless.
Total number of godwits: 825

We visited the rice fields east of Don Benito this morning. Started all the way east at Navalvillar de Pela and then via the areas around Obando, Vegas Altas, Madrigalejo, Palazuelo, Puebla de Alcollarin, Vivares to Valdehornillos. At first glance,, we encounter many suitable areas, but we do not see a single godwit. Again, it can be seen that there has been a lot of rainfall recently. Some rice fields have been ploughed but most of the work remains to be done. Our estimate is that about 25% to 33% has been ploughed. This varies a bit per area. It also shows that the replacement of rice fields for olive and almond trees continues steadily. At Palazuelo earlier this week, we saw rice fields being ploughed. But now that we pass there again, they are full of many herons, Spoonbills, storks and gulls. However, not a single godwit.

We finished the last 3 hours at the group of godwits near Almoharín. The group consists of at least 824 birds. Some of the water on the rice fields has been drained. Fortunately, the godwits have stayed put. They are foraging but mostly resting. Again, we do read some new rings. Towards dusk, groups leave in the direction of Valdehornillos. Not clear where they go down again. When we leave, only a small group remains.

Newly planted olive groves around Vegas Altas

16 February
At start 7°C, maximum 21°C, cloudless in the morning and slightly cloudy in the afternoon, almost windless.
Total number of godwits: 556

This morning we start again at Almoharín. Fortunately, the group is still there, albeit smaller than in recent days. An initial count takes us to 524 birds. Later in the day we count again and arrive at 556. Many colour-rings that we already encountered in recent days, but still a few new ones.

After reading and videoing a colour-ringed Dunlin, we take another look at the rice fields in the wide surroundings of Santa Amalia, Hernan Cortes and Valdehornillos. Still no godwit to be found. It is still searching for a needle in the haystack, which unfortunately we do not find in this immense rice field complex of the Extremadura.

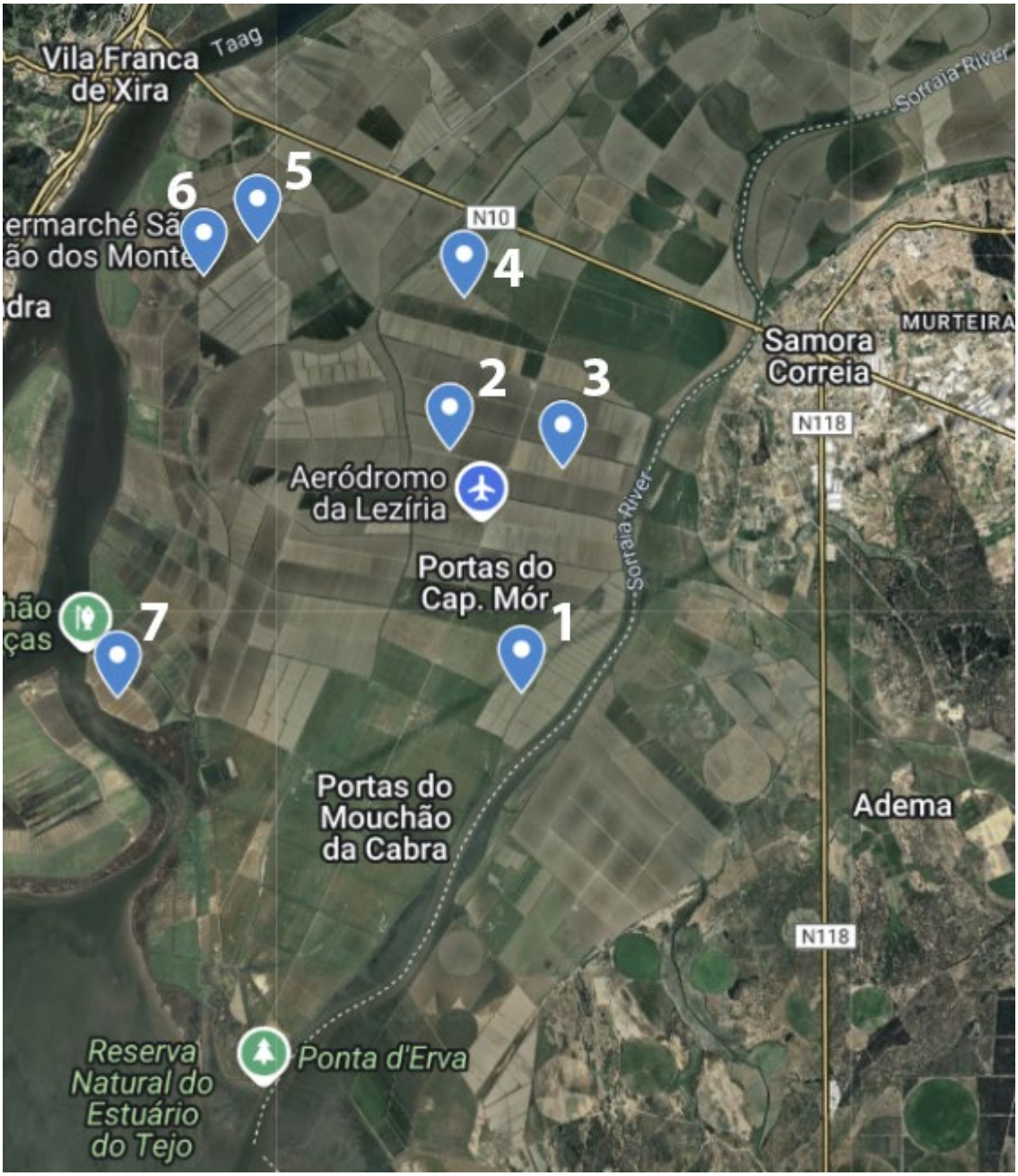
At Palazuelo, we have a quick look at the Spoonbills and no fewer than four species of heron (Grey Heron, Great Egret, Little Egret and Cattle Egret), which forage on frogs and crayfish that came along with the flooding of the rice fields. We count 21 Spoonbills, including a Danish and German ring, and en passant also read off a Lesser Black-backed Gull.

At the end of the afternoon, we did return to the group at Almoharín for a final inspection, where we ended the day and with it our 14-day expedition in Spain.

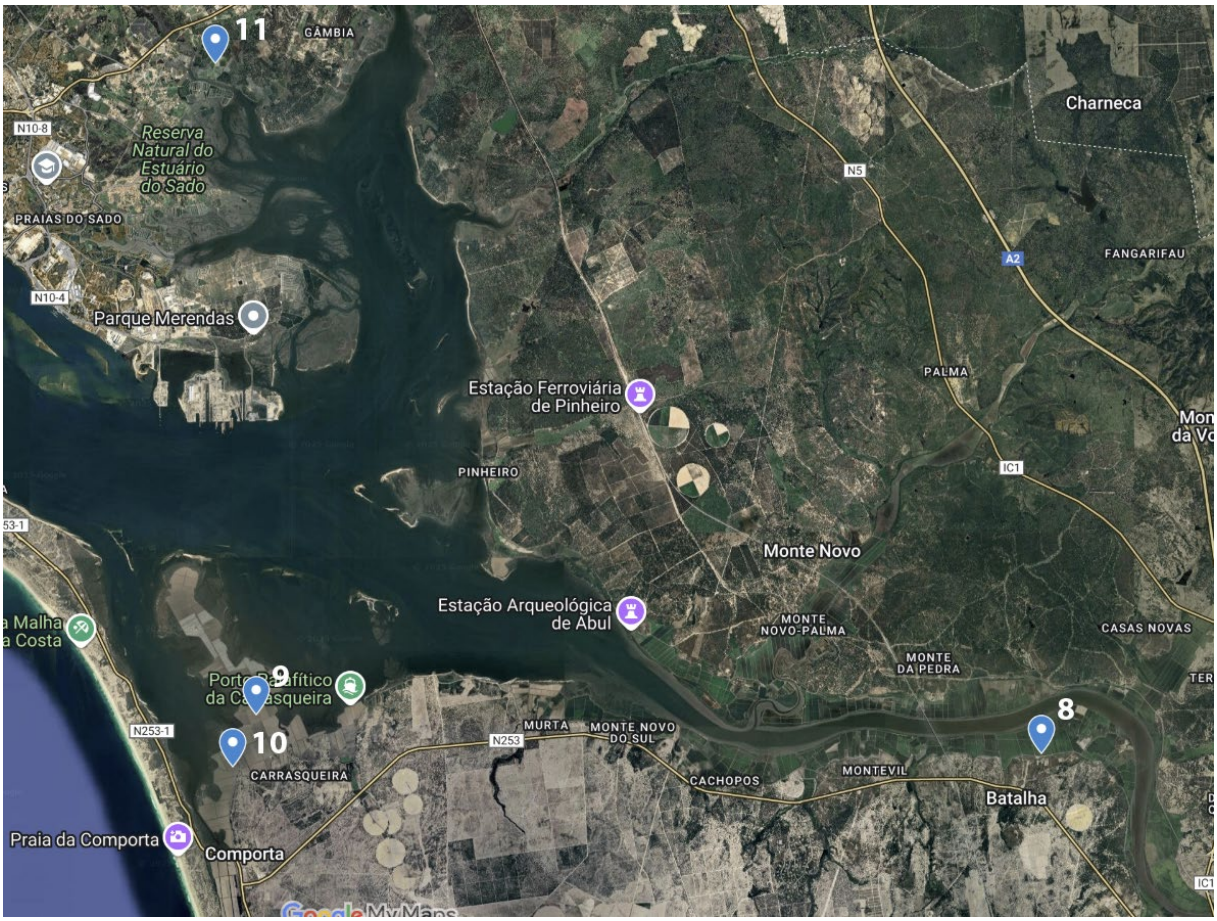
The godwits were most of the time in rest…

Appendix A: Locations visited (see text)

Tagus estuary / Vila Franca rice fields



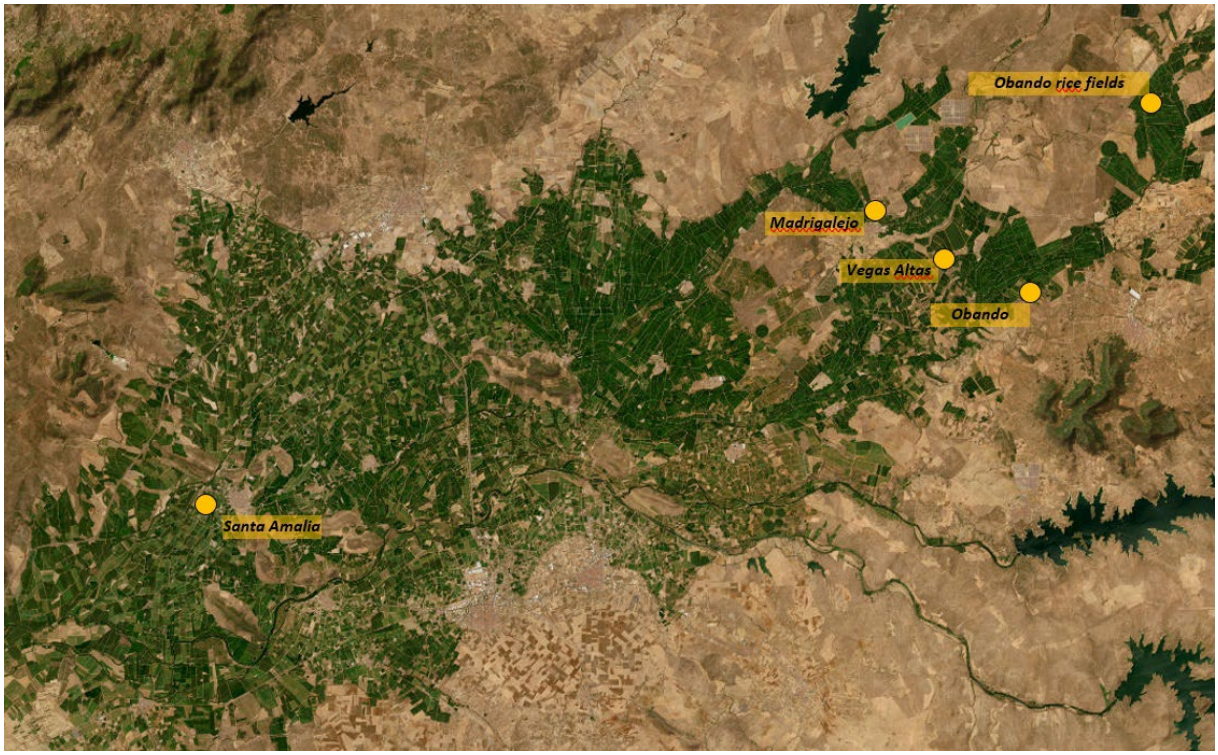
Sado Estuary



Doñana


El Rocio
Brazo del Este
Lucio Cuguero Grande/Chico
Veta la Palma
El codo de la Esparraguera
Algaida saltpans
Bonanza saltpans
Leaflet | © Esri, i-cubed

Extremadura



Detailed map Veta la Palma fishponds

Veta la Palma fishponds (A1 t/m H1) with surrounding estuaries
1.Lucia del Cano de la Sal, 2. Lucia del Cuquero Grande, 3. Lucia del Cuquero Chico.
4. Lucio de Don Miguel, 5. Lucio de Cuchanos en 6. Lucio Real
Office buildings

Appendix B: Coordinates of Godwit locations in S Iberia

ID	Region	Location	Latitude	Longitude
26	Extremadura	Hernan Cortes	39.03333	-5.93333
33	Tejo	Samouco, Samouco saltpans	38.73472	-9.00361
37	Algarve	Tavira, Ria Formosa NP, Tavira saltpans	37.10833	-7.63611
40	Algarve	Castro Marim, Cerro do Bufo	37.2	-7.45
46	Extremadura	Santa Amalia	39.00389	-5.98611
56	Extremadura	Valdehornillos	39.05028	-5.97583
57	Tejo	Samora Correia, Samora Correia rice fields	38.94194	-8.88528
58	Sado	Montevil, Cachopos	38.4	-8.60806
59	Sado	Carrasqueira	38.40222	-8.76028
60	Sado	Comporta	38.40417	-8.70972
61	Sado	Monte Novo da Palma, Rib. De S. Martinho	38.42944	-8.64278
77	Extremadura	Don Benito	38.98333	-5.88333
103	Algarve	Ludo, Ludo salt pans	37.03056	-8.00028
104	Sado	Zambujal	38.57306	-8.73472
105	Sado	Palma, bridge over Rib. de Sao Martinho	38.47222	-8.585
106	Sado	Alcacer do Sal	38.365	-8.50389
107	Tejo	Santo Estevão, Paul de Belmonte	38.85556	-8.745
108	Algarve	Vila Real de Santo António, Esteiro da Carrasqueira	37.18917	-7.46417
110	Sado	Marateca	38.58444	-8.675
111	Tejo	Benavente	38.98389	-8.81167
112	Extremadura	Yelbes	38.96944	-6.00167
174	Tejo	Vila Franca de Xira	38.83861	-8.96028
182	Extremadura	Palazuelo	39.11583	-5.73778
183	Extremadura	Ruecas	39.04528	-5.875
192	Tejo	Porto Alto, Giganta rice fields, Ponta da Erva	38.91667	-8.93333
194	Doñana	Puebla del Rio, Dehesa de Abajo	37.20139	-6.18028
196	Extremadura	Guadiana del Caudillo	38.93333	-6.68333
199	Doñana	Trebujena, Donana NP, El Codo de la Esparraguera	36.9	-6.28333
200	Doñana	El Rocio, Cota Donana, Lucio de las Gangas	37.07611	-6.38583
203	Tejo	Alhos Vedros, Alhos Vedros saltpans	38.65	-9.01667
204	Algarve	Olhão, Fuseta saltpans	37.05	-7.73333
211	Algarve	Faro, airport saltpans	37	-7.96667
221	Sado	Hortas West	38.76111	-8.93417
221	Tejo	Hortas West	38.76111	-8.93417
222	Extremadura	Conquista del Guadiana	39.05611	-6.0575
223	Extremadura	Medellín	38.98861	-5.96056
224	Tejo	Alcochete, Alcochete saltpans	38.74694	-8.92583
256	Algarve	Olhão, Olhão saltpans	37.01667	-7.85
268	Algarve	Tavira, East of Tavira saltpans	37.11667	-7.61667
278	Algarve	Tavira, West of Tavira saltpans	37.1	-7.63333
284	Doñana	Matalascañas, Laguna del Zahillo, Parque Natural de Doñana	36.98778	-6.50722
285	Doñana	Isla Mayor, Entremuros (Parque Natural de Doñana)	37.08611	-6.26028

286	Doñana	El Rocio, Marismas de El Rocío (Parque Nacional de Doñana)	37.12833	-6.50528
296	Algarve	Castro Marim, Natural Reserve saltpans	37.21667	-7.41667
297	Algarve	Bias, Bias saltpans	37.03333	-7.75
307	Tejo	Samorra Correia, Belmonte rice fields	38.91667	-8.83333
310	Extremadura	Pizarro	39.15139	-5.80528
315	Extremadura	Vivares	39.08333	-5.88722
382	Tejo	Alcochete, Pata salt pans	38.73222	-8.98861
383	Tejo	Alcochete, Almada salt pans	38.74194	-8.9825
384	Tejo	Alcochete, Restinga salt pans	38.73167	-9.00917
385	Tejo	Alcochete, Vasa Sacos	38.83333	-8.95
386	Tejo	Benavente, Paul de Trejoito	39.01917	-8.72222
387	Tejo	Alcochete, Barroca d'Alva	38.73056	-8.9
388	Tejo	Porto Alto, Ze do Pinho	38.96222	-8.89167
435	Doñana	Sanlúcar de Barrameda, Salinas de Bonanza, PN de Doñana	36.86667	-6.33333
452	Algarve	Santa Lucia, Santa Lucia saltpans	37.11139	-7.645
473	Tejo	Alcochete, Hortas	38.76306	-8.93694
475	Doñana	Isla Mayor, Veta la Palma	36.97083	-6.235
476	Sado	Monte Novo do Sul	38.40889	-8.68111
516	Algarve	Faro, Salgados de Faro	37.01889	-7.89472
529	Algarve	Armaçao de Pêra, Lagoa dos Salgados	37.1	-8.33333
552	Sado	Pontes, Pinheiro Torto saltpans	38.54889	-8.7925
559	Extremadura	Gargáligas	39.06556	-5.645
560	Extremadura	Zurbarán	39.0575	-5.71528
590	Doñana	Isla Mayor, Veta la Palma, rice fields	37.03556	-6.195
591	Doñana	Puebla del Río, Isla Mínima, rice fields	37.14278	-6.12417
594	Doñana	Isla Mayor, rice fields	37.13944	-6.18944
598	Tejo	Porto Alto, Cara Larga	38.96167	-8.92056
599	Tejo	Porto Alto, Toneca	38.95361	-8.93639
600	Tejo	Porto Alto, Ruivo	38.96667	-8.90194
601	Tejo	Granho, Foros de Benfica, Paul da Casa do Cadaval	39.10639	-8.6475
626	Doñana	Matalascañas, Laguna de Santa Olalla	36.98389	-6.46694
655	Tejo	Lisbon, Sacavém, Vasco da Gama bridge	38.78833	-9.08889
680	Sado	Setúbal, Salinas da Bonita	38.51667	-8.8
692	Doñana	La Puebla del Rio, Paraje Natural Brazo del Este	37.13333	-6.03333
713	Doñana	El Rocio, Lucio de Mari Lopez	37.04833	-6.30472
719	Extremadura	Puebla de Alcollarín	39.11667	-5.78333
720	Algarve	Lagoa, incl. Alagoas Brancas	37.13333	-8.45
721	Extremadura	Campo Lugar	39.2	-5.76667
724	Extremadura	Almoharin	39.15	-6.03333
725	Extremadura	Casar de Miajadas	39.13333	-5.85
742	Extremadura	Miajadas	39.14056	-5.89333
863	Extremadura	Valverde de Mérida	38.9	-6.16667
894	Doñana	Trebujena, Algaida Saltpans	36.88722	6.32944
932	Doñana	Matalascanas, Donana NP	36.93333	-6.45
945	Tejo	Porto Alto, Evoa	38.85	-8.96667
1032	Tejo	Alcochete, Murraça (sapal) salt pans	38.74184	-8.99042

1089	Algarve	Olhão, Ilha do Lebre	37.01	-7.86
1130	Extremadura	Galisteo	40.03	-6.28
1138	Extremadura	La Albuera, Laguna de la Albuera	38.686	-6.74567
1147	Doñana	Isla Mayor, Arrozales next to Brazo de la Torre	37.194	-6.186
1148	Doñana	Aznalcázar, Caracoles	37.3	-6.25
1296	Tejo	Porto Alto, Paul das Lavouras rice fields	38.866396	-8.8468
1307	Doñana	Las Cabezas de San Juan, Guadalquivir marshes	37.0569	-6.0833
1308	Doñana	Los Palacios y Villafranca, Isla Menor, Brazo del Este	37.103	-6.039
1337	Extremadura	Navalvillar de la Pela	39.09	-5.47
1338	Doñana	Isla Mayor, Lucio del Cuquero Grande, Veta la Palma	37.012	-6.241
1430	Sado	Bairro da Bonita, Salinas do Pinheiro Torto	38.549469	-8.79327
1434	Tejo	Lisbon, Parque Tejo	38.782691	-9.0913
1439	Algarve	Quarteira, Praia do Almargem	37.06	-8.08
1447	Extremadura	Hernan Cortes - Santa Amalia	39.03	-5.959
1448	Extremadura	Hernan Cortes - Medellín	39.006	-5.943
1449	Extremadura	Casa del Cuadradillo	39.057	-6.056
1450	Extremadura	Alonso de Ojeda	39.103	-5.956
1451	Extremadura	Santa Amalia, Tomato Factory	39.004	-6.013
1452	Extremadura	Santa Amalia - Valdehornillos	39.037	-5.993
1453	Tejo	Vila Franca de Xira, Giganta rice fields	38.938	-8.968
1454	Tejo	Porto Alto, Giganta rice fields, Ponta da Erva, East	38.910421	-8.920
1455	Tejo	Samorra Correia, Belmonte rice fields, Southeast	38.893934	-8.79492
1456	Tejo	Porto Alto, Giganta rice fields, Cardal	38.921737	-8.977
1460	Tejo	Benavente, Vale de Frades saltpans	38.78	-8.923
1564	Sado	Grândola	38.22	-8.47
1579	Sado	Montijo	38.698	-8.965
1609	Tejo	Carregado, rice fields	39.029416	-8.941