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Portrane Little Tern project 2023

Thomas Kavanagh



Figure 1: Nest L0223 a Little Tern family in the making BC4 in attendance.

Sternula albifrons albifrons

A continuation of the attempt to save their last nesting site in county Dublin.

The Little Tern Conservation Project in Portrane, Co. Dublin is managed by Bird Watch Ireland, Fingal Branch. In 2023 this project received support from The Department of Housing, Local Government and Heritage through the National Parks and Wildlife Service's National Biodiversity Action Plan Fund, and by Fingal County Council. Our ringing project for both the Little Tern and Ringed Plover was supported by Birdwatch Ireland.

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Abstract

Portrane 23 became our official title on March 6th. The coastal erosion at Portrane has continued. The nesting area at the northern end of Portrane beach has once again changed. Regular beach inspections at Portrane were carried out by team members between December 2022 and April 2023. Through our observations we were able to calculate that there was sufficient shingle for a 2023 breeding season at Portrane.

Members of the team met with the NPWS representatives Pdraig O'Donnell and Mairéad Stack and Hans Visser from F.C.C. at the site on March 6th. Discussions about various aspects of the project took place and it was agreed by all that the project should go ahead as planned.

At 11:40 on the May 1st approximately ten Little Tern were seen on the southern end of Rush beach at roost. Various other tern species had gathered with them there. The total number of tern was in excess of 100 birds. The number of Little Tern increased and 10+ were sighted on May 3rd. It was noted on May 5th that four pairs were scraping. We identified that one pair was ringed as a Kilcoole pair. Another included A9H that had paired with an un-ringed bird. The remaining 2 pairs were too elusive to identify. On May 8th the number of terns rose to 20. At 14:23 it was noted that the Least Tern (*Sterna antillarum*) had returned.

On May 13th together with the aid of the contractor (funded by F.C.C) we erected the inward netting fence around an area of the beach that looked the most suitable breeding area for Little Tern. We then erected a rope fence a few meters outward from the netting. We had done so to allow the returning Little Tern and Ringed Plover a safer space in which to nest. This area was named Area 1. The enclosed Area 1 also had within its boundaries three Meadow Pipit (*Anthus pratensis*), one Skylark (*Alauda arvensis*) and six Ringed Plover (*Charadrius hiaticula*) nests. Our plan again this year was to provide as much protection as possible for these species to successfully breed again.

Wardening of the Little Tern (*Sterna albifrons*) colony at Portrane was due to begin the final week of May 2023. After we confirmed that the Little Tern colony was established we erected an electric fence approximately 60cm inside the black netting fence to offer further protection to the breeding Little Tern colony. This year due to the early nesting of the Little Tern the roster had to be activated on May 15th. Area 1 also protected the dune area to the south and thus give the Ringed Plover, Meadow Pipit and Skylark a safer environment in which to breed. As the season progressed a Little Tern pair began nesting in an area outside of Area 1. We extended Area 1 in order to protect this nest. After the site construction we inserted a number of shortened Wavin pipes and wooden huts to provide shelter and hiding places for the chicks to use. We also inserted a number of terra cotta little terns to encourage the Little Tern to nest.

Due to resource issues we were unable to operate a night wardening roster. The lack of provision for a

night warden meant that night predation could only be reacted to after the initial attacks.

Project aims

Portrane little tern project strives:

“To provide a safe and secure environment in which Little Tern can reproduce and fledge their young and so contribute to the fulfilment of Ireland’s legal obligation under the EU Bird’s directive”.

In order to achieve this, BWI Fingal through its wardening sets out:

To promote awareness within the local community and the visiting public that it is only through their co-operation that success will be achieved.

To erect a physical barrier to discourage ground predation of the nesting site.

To maintain surveillance during daylight hours to deter avian and other predators from taking eggs, chicks or adult birds.

To monitor, record, analyse and tabulate adult behaviour, food consumption, scrape location, egg yields, egg types, hatching efficiency, fledging proficiency, the returning Portrane birds.

To expand our knowledge of Little Tern conservationism.

To liaise with other projects in order to gather external experiences to enhance our project.

To record and monitor the ecosystem that is Portrane Beach.

“little” Terns

There are five species of tern breeding in Ireland, Artic tern *Sterna paradisaea*, Common tern *Sterna hirundo hirundo*, Little tern *Sternula albifrons albifrons*, Roseate tern *Sterna dougallii dougallii* and Sandwich tern *Thalasseus sandvicensis*. The knowledge that the reclassification of species is an organic process, ongoing and forever. It is my understanding that science will prove that these seemingly similar species are on different branches of the phylogenetic ‘tree’ with common ancestry. According to eBird/Clements Checklist v2021 there are seven species within the Genus *Sternula* with a further twelve subspecies. Similar species, the Least tern *Sternula antillarum antillarum* breeds in North America and winters to northern Brazil.

Saunders tern *Sternula saundersi* nests from the Red Sea to India and Sri Lanka and winters to the Malay Peninsula. Little tern *Sternula albifrons albifrons* nests across the western Palearctic and winters on both sides of the African continent. The wintering location of Irish Sea Little Tern is as yet unknown. The relatively recent reclassification of “little” terns has led to the creation of a variety of subspecies. Future research on the migration patterns, food consumption, and the further divergence/isolation of these subspecies it is easy to conclude that the evolutionary process is occurring before our eyes on Portrane beach.

The Bird and its history in Ireland

The Little Tern (*Sternula albifrons*) is the smallest and scarcest of Ireland's five breeding tern species. They are long distance migrants, wintering in West Africa and returning to Irish coasts to breed in late April and early May and departing again from late July to mid-September. The majority of Little Tern in Ireland nest on beaches that have a mixture of sand and shingle. Nests are composed of a shallow dip scraped in the beach substrate generally above the high tide line. The eggs and chicks are well camouflaged in the sand and shingle. Due to their nesting habitat, Little Tern are very vulnerable to recreational human disturbance, sea level rise and predation. Little Tern are classed as an Annex 1 species under the EU birds Directive (79/409/EEC), requiring member states to take special conservation measures to ensure their survival and breeding success. In Ireland and the United Kingdom, the species is amber listed by BirdWatch Ireland and the RSPB (Royal Society for the Protection of Birds), indicating that this species is of medium conservation concern. The little tern is fully protected under the Wildlife Act (1976, Amended 2000).

Little Tern adults, average 21-25 cm in length and have a 41-47 cm wingspan. They have 1 brood with 2-3 eggs of an average size 32x24 mm and weighing = 9.6 g (of which 6% is shell). Their typical lifespan has been 12 years with breeding typically at year 3 (BTO data records). The oldest recorded bird in Ireland is 19 years and 25 in the UK. *Sternula Albifrons Albifrons* has been recorded in Ireland by Usher and Warren before the early part of the 20th Century. They noted that the largest colony in Ireland had over 50 pairs "known to nest". Later Kennedy, Rutledge and Scroope noted that little tern colonies were small and were up to 25 "little terns breeding" and that perhaps the species was in decline. However they did record a colony of 40 to 50 pairs in County Wexford. Today Little Tern are probably the scarcest breeding tern in Ireland. Post the 2019 project I visited Tory island in Donegal and during a discussion with local birder Anton Meenan discovered that a pair of Little Tern had attempted to nest near the lighthouse at the western end of the island. During the 2021 project, a team member had a 2 adults flying near an island near Belmullet. In 2004 Pickerell cited in Cabot and Nisbet (p136, 2013) estimated that there were 206 breeding pairs in Ireland. All of the monitored little tern breeding sites on the east coast of Ireland had reduced populations in 2023. This year there appeared to be a reduction of between 15 to 20 per cent in the breeding pairs along the East coast of Ireland. However it should be noted that it is possible that the absent pairs may have been nesting in the UK. Of the 15 adult Little Tern trapped and ringed at Portrane in 2022 14 were sighted in 2023 at the 3 main east coast colonies. Little tern Darvic rings used in Ireland begin with I, A, or B. However an unusual sighting of HC2 was a puzzle. It appears that this bird was trapped in Senegal in April 2023. It had been ringed as a juvenile at Kilcoole in 2021. However their reproductive strategy places them in perilous situations ranging from inundation by the sea, loss of habitat, human and canine disturbance, natural predation and parental skills. Post our 2023 breeding season I visited Lady's Island Lake only to discover that sadly no little tern chicks had survived to fledge. Further investigation of their breeding sites from BTO data reveals that in recent years Little Tern may be breeding on the coasts of Cork, Galway and

Mayo. The birds have also moved North in the United Kingdom to the Outer Hebrides and Orkney.



Figure 2: IX0 born Portrane 2018 nested in Baltray in 2023

The Little Tern of Portrane

The early years

There are written personal accounts of little tern breeding attempts at Portrane beach between 1990 and 2017. It was during this period that the members of the Fingal branch of BWI fenced

off a section of the beach using rope and fence posts. A number of signs were attached to the fence to inform the public about the conservation project. From 1990 to 2017 it is probable that chicks did fledge at Portrane, however the total number is likely to be no more than seven. Prior to 1990 it is likely that the environment at Portrane was unsuitable for breeding. There are accounts from the 1970's that Little Tern nested to the south of the Island Golf Club. There are also records of them breeding on the north end of Bull Island. Sadly these sites are no longer being used for breeding purposes. This abandonment may well have been due to the constant disturbance by the public of these nesting sites.

In both 2016 and 2017 the Fingal branch had monitored the arrival of Little Tern at Portrane. Unfortunately after the initial count of approximately 20 adults in late May of both years, this number dwindled to zero within a fortnight. Most of the adults were un-ringed. The few that had a metal ring were mostly from Kilcoole.

When I received a call from Paul Lynch (BWI Fingal) in May 2018 that he had counted 22 adult Little Tern at Portrane again, I said that I would take a look. I arrived in late May at the most southerly end of the old roped off area and scanned the area to the North. This area had been roped off by Fingal BWI branch members prior to 2016. It should be noted that 2018's site has now been completely washed away.

The 2023 season



Figure 3: BC4 adult with offspring BA4



Figure 4: Ringed plover fledged chick EJ

We had visited Portrane beach throughout the winter. Once again the sea had removed much of the 2022 nesting area. There was however a noticeable build-up of shingle to the north west of the site. This area looked promising and it was hoped that both little tern and ringed plover would nest there. Our final visit post the spring tide of April confirmed our belief in that ringed plover had begun to nest at Portrane.

Due to a minor confusion we were late in advising FCC about the installation date of the fencing. As a result our installation date of the fencing was May 13th. To avoid this confusion in the future a sub-committee was established to oversee this in the future. We calculated that we would require 120 eight foot posts and 20 six foot posts to hold the rope, signage and netting. This year the early arrival of our breeding birds caught us by surprise. Records show that on May 5th there were 6 pairs established and scraping at Portrane.

Trying to ascertain how many Little Tern are present on a given day is dependent upon tide height, possible disturbance and time of day. At 14:23 May 9th we had a count of 20. The following morning we again had 20 birds. At 18:24 on May 10th we counted over 40 Little Tern at Portrane. Unfortunately we were not ready and there was too much disturbance for many of these birds to nest at Portrane. From ring reading reports taken at the time many of these birds went to Baltray to nest in 2023. This year it was the Ringed Plover who started breeding first followed by Meadow Pipit and Skylark. At least two Ringed Plover nests were complete and were brooding by May 9th. There were a number of other nests under construction.

The Little Tern who remained at Portrane were prospecting and scraping at the North end of the beach. We had two distinct breeding attempts at Portrane 2023. Initially, a total of 5 little tern breeding pairs made 5 nesting attempts with a total of 14 eggs. The second phase of 12 breeding pairs nested much later and were more than likely re-nests from the Baltray colony. At the beginning of this year's project we had 9 "extra" *Sterna* one of whom was identified as the Least Tern (*Sterna Antillarum*). Many of the other 8 were 2nd year birds that did not breed. We are of the opinion that at least 4 of these birds did nest as 2nd year birds. The first little tern eggs were found on May 19th and the last clutch L0523 was completed on May 30th. From notes

taken we had 11 Ringed Plover nests that same day. Both Skylark and Meadow Pipit had already fledged and were starting their second brood.



Figure 5: A1J- BHX from L0723

This year yet again we attempted to trap and ring any un-ringed adult Little Tern that were nesting at Portrane. At 13:00hrs June 12th we trapped our first adult ♂ BC4 from L0223. Later that afternoon BC5 ♀ from L0623 was trapped. Because of the geography of Area 1 we were unable to observe nests L0123-L0423 as closely as we would have liked. L0523 was visible from our observation point. About 50% of the 2nd phase Little Tern nests could be viewed from our observation point. Our first Little Tern chicks from L0123 arrived on Sunday June 11th. L0223 began hatching Tuesday June 13th. That same day L0623 was discovered to the south of Area 1. The following day the final egg hatched from L0223. As L0623 was between the blue rope and the black netting it was decided to extend Area 1 to the South. The third egg from L0123 had yet to hatch and we speculated that this egg might be infertile. Our predictive calculations were spot on as L0323 hatched as expected on the 15th. L0423 completed hatching on Saturday June 17th. The third chick from L0523 arrived the following Monday.

The ringing of the Little Tern chicks proceeded apace. This year we placed the BTO metal ring on our chicks after 2 days. On June 17th we placed our first Darvic BC6 on a chick from L0123. At 6 days it weighed almost 29.3grms half the weight of an adult. We had 13 chicks and one infertile egg from our first 14 eggs.

June 19th also saw the second set of nests begin in earnest. By June 26th L0723, L0923, L1023 were complete with 2 eggs each. L0823 had as yet only 1 egg. On the 28th BHX ♀ was trapped. The nest count rose to L1223 on June 29th. It was a busy day. The number of Little Tern adults had risen to 42. Two Ringed Plover chicks were trapped and ringed. BHZ ♂ and BJ0 ♂, Little Tern adults from L0723 and L1023 were trapped and ringed. The second nesting phase would see 12

pairs produce 21 eggs. It is our belief that many of these nesting pairs came from Baltray post predation that had taken place days earlier. The sparrowhawk was busy that day with 11 passage sightings. The kestrel was also busy with 9 visits to the area. However the most significant event of that day was that BC6 the alpha chick from L0123 fledged. More adults were trapped as BJ2 ♀ and I5L ♂ was re-ringed as BJ3. On July 3rd we knew that L0623 was close to hatching as we could hear the chick chirping inside the egg. The following day we noted that 5 of our Little Tern chicks had fledged. Our Ringed Plover chicks were also doing well. On July 4th we counted 15 Ringed Plover chicks. Two of whom had fledged already 8 more very close to fledging and 5 others 6+ days old. On July 5th it looked likely that L1623 was under construction. We counted 47 Little Tern at Portrane beach. It is believed that birds from other colonies were at that time visiting the Portrane area prior to migration. We also noted that the number of Ringed Plover chicks was increasing. L0623 hatched July 6th and the 4.2M tide at 02:15 did not impact upon the colony.

Disaster struck at 03:04 in the form of an inundation on July 7th. The predicted 4.2m tide was accompanied by a 60+ kph south easterly wind. That tide washed away nests L0723 to L1423 (16 eggs) in a storm surge that saw most of our nesting site submerged. Many of the eggs were broken and those that were intact were removed. These eggs will be used in the next years as replacements during the process of trapping adults. The surging tide came to within 60cm of the tent. That night the northwest portion of Area 1 had been an island. Some of the fence posts supporting the electric fence were uprooted and thus 50% of this fence was felled and left in a tangled mess of electric fencing, green support posts, wooden posts and Wavin piping. There were very few points of reference left at the site. The plastic box that contained the battery was full of water. The extension to Area 1 around L0623 because of its orientation took the brunt of the storm. It had been pummelled, the black netting posts were broken in pieces. Much of the netting was buried beneath gravel pile that was new to the area. Miraculously the 3 day old Ringed Plover chicks from that area survived the storm. They would survive to receive BTO bling and would later fledge. The site was repaired and our concern was focussed upon the survivors if any. It was noted that throughout the day fish were being delivered into locations out of our view. By days end we identified 7 different little Tern chicks together with 4 Ringed Plover chicks at the North end. Both Baltray and Kilcoole also lost nests at this time. Because of the lateness of this setback there would be no re-nesting from this loss.



Figure 6: The Beta chick from L0123 would fledge as BA6

When the sea sweeps all before it leaves a trail of destruction and death. On occasion however some eggs are left intact. Reviewing the damage and loss caused by the inundation we have decided to put in place a recovery procedure should this ever occur again. The reason for this change is to maximise the output of the colony. As we always take a GPS recording of each nest we are in a position to return/replace any eggs that are washed intact from nests. Depending on circumstance intact eggs must be returned to the nest site from which it is most likely to have come from. In our constant communication with our friends at Baltray we have learnt that returning eggs to a nesting location offers the possibility of a return to brooding, hatching and more fledglings. We at Portrane have seen fully submerged Ringed Plover eggs hatch successfully.

There were two eggs still in L1522 and a single egg in both L1623 and L1723. We believed that the latter nests were still under construction. Sadly the chick from L0623 was washed away. In the past we have observed that nesting adults post inundation search the area as if looking for the lost. This was in evidence again this year with L0623. The nesting pair spent all day calling and searching the area where they had hatched their chick in the forlorn hope of being reunited with their offspring. On a positive note nine of our Little Tern chicks had now fledged. Area 1 had been severely damaged. The following days saw repairs carried out to the site. Both L1623 and L1723 were abandoned within 2 days. The adult pair on L1523 were not brooding very effectively. Most of the time they were absent from the nest. L1523 would be later abandoned on July 22nd. We took the opportunity to retrieve both eggs and send both eggs to Jon Martin Collinson - Professor in Genetics at the Institute of Medical Sciences, Foresterhill, Aberdeen. The reason for this was to take some blood samples for analysis and preserve the specimen and egg for future analysis.



Figure 7: BC6

We have noted that the number of eggs laid in nests at Portrane is dependent upon the food supply, the condition of the adults and how experienced the pair are at breeding. From our observations since 2018 we have noted that the vast majority of experienced birds at Portrane lay 3 eggs in their initial or primary nest. The output of re-nesting pairs at Portrane is however more complex. Identifying a re-nesting pair is at best difficult as they are usually from another colony. Late nesting pairs do not necessarily equate to re-nesting birds. Some birds arrive as a pair and as a result avoid the distraction of competing adults. This lack of distraction may provide time for these pairs to feed up and produce 3 rather than 2 eggs. At Portrane however, we have observed that when the re-nest is early (pre 16th June) the pair will generally lay 3 eggs. Later re-nests have been in the main 2 eggs. Since 2018 we have recorded 2 complete, single egg nests. We might speculate as to how many eggs a female might produce in a season given the right circumstances. In 2022 one inexperienced pair (female A8S) produced a primary nest of 2 eggs. It suffered a fox predation and the pair re-nested but at an incomplete stage it was washed away. The pair went on to produce a third nest with 2 eggs from which both chicks fledged. We noted that this year 2 nests of 4 eggs each were recorded at the Kilcoole colony. Our relationship with the public in general has been excellent in 2023. The positive relationship we have cultivated since 2018 has been of great benefit to the successful breeding outcomes at Portrane. We did however have issues with some photographers on Wednesday June 21st. Having described themselves as being wildlife photographers they proceeded to harass both chick and adult Ringed Plover along the beach. Later they attempted to photograph adult and chick Little Tern. As they approached the outer fence they caused havoc within the Little Tern colony. Sending chicks running and flushing sitting adults into the air. Both Ringed Plover adults

and chicks within the enclosed area received equal treatment and they too scattered. It would take weeks to account for all of the Little Tern chicks.



Figure 8: A8S fishing in the lagoon

Prior to the breeding season the area was checked for possible threats to the colony. It was noted that most of our corvids species were present and breeding. It is imperative that any corvids be deterred from feeding anywhere close to the breeding area. This lesson was learnt the hard way in 2018. Our persistent alertness and our ability to deny them access to this feeding area is paramount. As intelligent opportunists they can be educated to forage elsewhere that is less troublesome. At the beginning of the 2023 breeding season our greatest avian threat came from various species of corvids. Initially it was rooks who attacked Area 1 and its hinterland. It is likely that they predated 4 Ringed Plover nests that were situated outside of Area 1. These predations occurred outside our roster time. The rooks were replaced by a family of magpie who went after nests L0123-L0423 and a Ringed Plover nest at the northern end of Area 1. It was only the vigilance of the warden that drove the pedestrian magpies into the air to be dealt with by the Little Tern. Jackdaws were a constant presence and were similar in their attack strategy. Jackdaw often walk through the marram grass foraging. If we saw one, you could be certain there were more. Having learnt how to deal with corvids in the past this year's corvids were driven away and they learnt from our persistence. Once again hooded crow were the most dangerous. Hooded crow require more attention and must never be allowed to feed anywhere near the protected area.

This year the early arrival of the migrant birds seemed to give them a breeding advantage over the resident birds of prey. The local breeding birds of prey seemed to have been about two and a half weeks behind the plover and tern colonies. This year we had far less close encounters

with the kestrel pair. From numerous sightings throughout the season the sparrowhawk pair seemed to have targeted rodents this year. They hunted an area to the North of the river beyond the houses away from the colony. However their returning flight path took them directly over the colony. On at least three occasions the returning male sparrowhawk crash landed in or near the colony due to the weight of its prey. On these occasions the sparrowhawk was chased away by a combination of actions from Little Tern adults and zealous wardens. It should be noted that the common buzzard is becoming a more frequent visitor to Portrane Beach. This species will definitely be a serious threat in the future to all of the breeding species of Portrane. Last year's most dangerous and successful predator the peregrine was seen on a few occasions but did not impact upon the colony this year.



Figure 9: Broken posts and tangled electric fencing



Figure 10: L1523 survived the storm surge but would later be abandoned

It should be noted that from our records this year is the knowledge that both L0723 and L0923 were only a few days from hatching. Reflecting on this fact I checked my notes from 2018. Although the 2018 storm surge occurred earlier in the season it did occur just prior to hatching. Both the 2018 and 2022 losses occurred earlier in the breeding season and thus enabled the breeding birds to re-nest. This year however the loss occurred much later and thus the established pairs were unable to or decided not to re-nest. Little tern re-nesting strategies seem to differ depending upon the time the loss occurs. Early losses to ground predation usually mean that the pairs move to another site and re-nest there. An early breeding season inundation usually results in the pair re-nesting near the original site within 5 days. Little Tern appear to know that next high tide is further away than the average incubation period. It was noted that many of the Little Tern pairs from our second batch were from this year's Baltray colony. They had been recorded earlier in the season by us when we were assisting the Baltray project with their ringing programme. Through our regular contacts with the Baltray project we were advised that they had had a serious predation by two foxes. Several of the pairs that had lost eggs at Baltray arrived at Portrane about 3 days after their nests had been predated. Unfortunately they would lose their second brood at Portrane through inundation. Post July 22nd we had one Ringed Plover nest with 3 eggs at the north end of the site. There was a second nest to the south on the seaward side of Area 1 with 4 eggs. We notified FCC that we had decided to take down the netting and posts before the next high tide due on August 4th. The closing date chosen was Friday the 28th July. Prior to the 28th we discovered some adult Ringed Plover remains at the north end. The 3 egg nest was later declared abandoned and we speculated that one of the adults had been predated. Following the weekend's activity the remaining 4 egg nest was discovered to have been damaged. Two of the eggs were broken with the chicks clearly visible inside the broken shells. The remaining two eggs that had been

knocked from the nest were returned to the nest area. Later that week we discovered that the two remaining eggs had hatched and the newly born chicks were running about the beach.

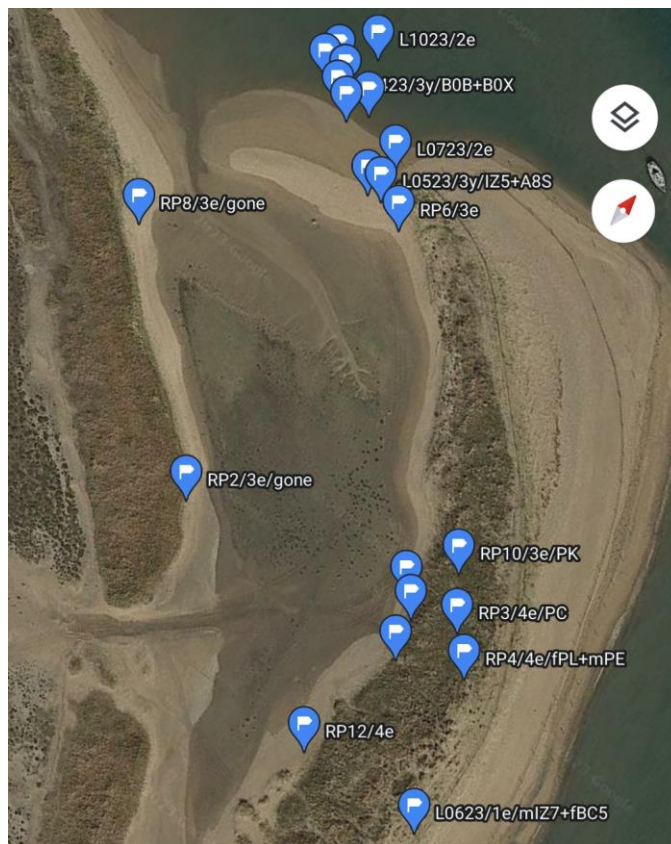


Figure 11: 2023 sites

When we started our 13 hour roster programme in 2018 we started a process that has led to the following code for the little tern nests. The example L0719 may be decoded as follows. L = little tern, 07 = the 7th located nest in the season, 19 = the year of the project. Re-nests are registered as follows R0520 R = little tern, 05 = the 5th located re-nest in the season, 20 = the year of the project. This year we continued to label the Ringed Plover nests in the vicinity of the site in a similar fashion. This process was started in May as part of an attempt to identify and if possible ring the adult Ringed Plover and monitor their progress. The label pattern RPXXYY was used again. It was hoped that this label pattern would allow us to identify parent and chick relationships within the Ringed Plover breeding pairs. Because of their breeding strategy it is far more difficult to identify Ringed Plover family units. To refer to Ringed Plover as a colonial species is problematic. The area that breeding pairs occupy is jealously protected with both genders participating in its defence.

As the Ringed Plover chicks are precocial (young ready to leave the nest almost immediately) they wander about the beach upon hatching. Ringed Plover adult's duties are then confined to watching over their offspring as they feed along the shoreline. There are many dangers for the wandering chicks on the shoreline. *Laurus* sp. and corvid sp. hunt there and all of our resident

raptors criss-cross the area searching for an easy meal. Other problems encountered by chicks occur when they stray into other Ringed Plover territories. However when external threats are encountered warning calls are repeated throughout the nesting area by all adults. In this way the Ringed Plover are the sentinels for all of the breeding birds at Portrane.

This year we had the very obvious presence of avian influenza on the 2023 project. Thankfully we had advice and support from National Parks and Wildlife Service (NPWS), Bird Watch Ireland (BWI). Health and safety procedures were put in place. Unlike last year we were permitted to carry out our ringing programme. We were all acutely aware of the expansion of Avian Flu throughout the British Isles. As a result those who were ringing our birds adopted a strict equipment sterilization policy. Trapping and ringing of Ringed Plover and Little Tern proceeded apace. There was a belief there was a risk of transferring Avian Flu from site to site and this action was taken to prevent this. We restricted the number of wardens who had access to the nesting areas. The handling of sick birds was also considered a bio-hazard. Equipment used to inter dead birds was disinfected. No Little Tern or Ringed Plover at Portrane contracted Avian Flu in 2023. A single Common Gull and a number of Common Tern perished as a result of contracting Avian Flu. Procedures for disinfecting footwear and equipment were put in place. We decided to bury all of the carcasses as soon as possible. Post burial we disinfected all of the tools used.

Portrane beach and site 2018-2023

The entire beach and dune/saltmarsh of Portrane beach is classified as a Special Area of Conservation (SAC) and a Special Protection Area (SPA) National Parks and Wildlife Service (NPWS). It is thus a protected area by law. The area also falls within the jurisdiction of Fingal County Council (F.C.C.) and is also protected by their bye-laws. At high tide the area becomes a peninsula with The Burrow to the West and Rogerstown outer estuary. The outflow of the Ballyboghil and Ballough rivers are the main two feeders. There are also Bride's Stream, Jone's Stream and Baleally Stream feeding the estuary. They flow from the surrounding farmland and feed a deep channel to the sea to the East.

Prior to 2018 BWI Fingal had an area of shingle beach cordoned off with 2 meter poles 10 meters apart with a single connecting blue rope 90-100 cms high. The site's length was 150 meters north-south 40 meters East-West. The signage attached was bleached with age but was still serving Bird Watch Ireland (BWI), BWI Fingal and FCC. The sands of time had buried the western side to the extent that the rope was 20 to 30 cms from the ground. The other 3 sides still had purpose. This area was referred to as the old area. By 2023 all of the area to the southern and eastern ends of the beach had been washed away, by high tides. All of the previous year's nesting areas are now under water at high tide. Most of this year's site did not exist as a shingle beach in 2018. The Portrane site is subject to very high tides and is vulnerable to annual inundation. The intertidal area exposed at low tide is approximately 2km by 2km. This area is very uneven and thus is pock marked by intertidal pools and ridges. The area furthest out is covered by a fine sand however there are now two large areas of shingle to the east of Area 1. Both shingle areas are adjacent to the river. In 2023 the shingle area within Area 1 began about 1 metre from the river's edge at the northern end of Area 1. Its area was

approximately 35m East-West at its widest point and by 200m North South. The area was divided in half by beach debris that included dead buckthorn. From the first group of Little Tern nests L0123 – L0423 were located to the North of the debris. L0523 nested to the south of the debris. If we merge the two breeding attempts this year we noted that fifteen nests were placed to the North of the debris and two to the south.

Functions of wardens.

Monitoring the arrival of Little Tern at Portrane began prior to May 1st. However, following the erection of the fencing the warden's duties included the checking of the external netting for any night-time activity by predators. At first the daily visits were to take counts of Little Tern and observe what other species were nesting and the type and number of predators that were in the area. The activation of the on-line roster was held off for as long as possible. This was done in order to conserve our resources for the actual breeding season. The roster was activated when the Little Tern started scraping.

Because of the layout of the colony this year it was impossible to observe the majority of the nests for any length of time. As a result it was decided to utilise the human resources differently in 2023. There was far less data collection in 2023 because most of the nests were impossible to observe without disturbing the colony. Our monitoring was mainly confined to L0523 and L0623. We also were able to observe L0723, L0823, L0923 and L1023. Based upon the food brought in at these nests it was noted that the food supply was as good as in previous years. Ringed Plover nests were checked every day to make sure that were intact. Because adults do not feed their sitting partners there is little point in observing sitting Ringed Plover. We still adhered to the observation processes that were used in previous years. Those who were new to the collection of data this year were given a very basic outline on data collection. "This is the nest you will be recording, note down everything you see". We take this approach so as not to influence the type of data being collected. Data collection and the processing of that data carries with it the value of the observer. Much of the data collected is similar however if the procedures are too restrictive we might overlook behaviours that might otherwise be revealed.

From our records "When eggs are being laid down there is a time when the observer notices the laying adult that is sitting exchanges her position with her male counterpart". This is the moment when we know when incubation starts. We can then calculate the approximate hatching date. As this day approaches we intensify our observations and in certain circumstances video trail cameras were installed. The adult's behaviour alters during the period of actual hatching. Shell removal does not occur immediately after hatching. The data collectors other duties pre-hatching included the length of time adults spent sitting, the time changeovers occurred and whether feeding took place. Post hatching the documentation of feeds to chicks is of paramount importance. This data informs us about the food supply and its quality. It also informs us about the hunting capabilities of the parents and the likelihood of the chicks fledging successfully.

In order to simplify this data recording as much as possible. We continued with the standardisation of fish sizes (small, medium and large) that were based upon the length of the bill of the adult little tern. Thus a small fish feed was any fish that was smaller than the adult bill

length. Post ringing the identification of recipients was also recorded where possible. In 2023 the identification of the recipient was more problematic when the chicks became more mobile. On many occasions all that the observer saw was the adult deliver a fish to a location hidden by vegetation and depart without any. Nest observation can become a tedious task. In order to ease the boredom some of those on protection duty exchanged roles with certain data recorders.

Protection duty always held the highest priority thus in emergency situations wardens were permitted to enter the site to ward off avian predators. The only other occasions where we entered the site were to insert or remove cameras or recording devices. During the ringing sessions in order to minimise the disturbance we created a procedure for these and future events.

Nests were targeted for ringing based upon the age of the chicks. Little Tern chicks at 2 days old were targeted for BTO metal ringing. Chicks at this age are never far from the nest site and thus we can register family groups intact. Ideally chicks should be less than ten days old for Darvic rings.

Ringed Plover chicks were treated differently. Both types of rings were attached at a later stage in their development. Chicks were deemed ready for BTO ringing when they were more than 8 days old. Ringed Plover chicks received their Darvic rings at about 14 days old. To assist us in chick, nest and parent relationships we decided again in 2023 to attempt to ring all adults that had only a metal ring or were un-ringed. Camera traps were set during the day to identify potential targets. Those birds that had Darvic rings were checked for wear and tear and their numbers recorded. Jan built new traps and these were used very successfully on the nesting Little Tern adults. Some adult birds seemed to know that a trap had been set and they simply refused to brood. When this occurred we moved the traps to other possible candidates. It is hoped that the practice of ringing will aid us to create an historical profile/map of relationships at the Portrane site.

Each nest is photographed for later analysis of egg types. Eggs are weighed and measured for a more complete biometric profile for each nest. Our policy on disturbance is that other than for the ringing of chicks we always wait for the colony to rise before entering the site. From our observations there is a vast amount that we have yet to understand and so we must be vigilant in keeping our interaction to a minimum. We are in a sense a service provider for the avian species that choose to spend their summer at Portrane. The total amount of hours spent wardening by the team was again in excess of 2000 hours this year.



Figure 12: Site construction

Site Construction

An example of why the nesting area needs to be cordoned off from the public follows. This year the traffic in and out of Rogerstown harbour varied from previous years. There was little impact upon the colony by this traffic, however we had more canoeists and paddle boarders and they did impact the colony during the incubation period. Visitors to the beach from the caravan park did not cause much trouble at the northern end. The brooding birds rose to investigate but after a while they settled again.

This year an area of shingle beach was cordoned off with 2.5 meter poles placed 10 meters apart on the external rope fence. Most of the netting fencing was also supported by 2.5 metre poles. These poles were inserted to a depth of 1.80m. The remaining poles used were 1.85 metres long were inserted to depth of 1m. The netting in 50m lengths were attached with the base of the netting buried beneath the sand to discourage predators. The site's inner netting perimeter was approximately 700 meters in circumference and 35 meters at its widest East-West. Each post had plastic spikes attached to deter perching by corvids and other predators. We added a number of new signs and these were attached to every second post. It was informative and served Bird Watch Ireland (BWI), BWI Fingal, NPWS, and F.C.C. A number of

signs were strategically placed beyond the site asking the public to maintain a 10 metre distance from the netting. Most of the public were very supportive but unfortunately a small number did not stay 10m out from the netting. It was very apparent that walkers and their pets who walked in close proximity to the site were a significant disturbance to the colony. We erected an outer rope 10m outside of the netting. For next year we require a small number of “NO ENTRY” signs to advise the public to stay outside the site. This year the enclosure of an area of the dune system offered Ringed Plover, Meadow Pipit and Skylark a safer and successful nesting area.

The poor weather this year meant that the blackboards were washed clean and were harder to maintain. Again they were located at both the northern and southern ends of the site. The idea of a notice board had been discussed at the beginning of the 2018 project. We had used them in 2019 but their true impact was revealed during the 2020 project. The blackboards were updated throughout the project on the colony’s development.

The Site 2023

Erosion

Compared to the 2022 site it was obvious that we had lost the entire site from that year. The eastern side of the site was gone and up to 2 metres lower in most places. The previous 2023 spring tides together with wind action had created a single ridge on the eastern edge. We noted that the entire easterly outer ridge was regularly breached by tides greater than three point six meters. This ridge was situated beyond the external blue rope fence to the east of the site and the eastern side of the netting. Fortunately neither Little Tern nor Ringed Plover nest was established in this area. The natural erosion of sand from the beach created a larger shingle area higher up the beach that was suitable for nesting

Signage

This year we updated our signage content. We also increased the number of their locations along the approaches to Area 1. The signs were placed strategically around the outer perimeter of the site. There are a number of public access points to Portrane beach and informational signs were placed at these locations.

Protection shelters

Again in 2023 we used both wooden and plastic shelters to offer the chicks some protection from the weather and predators.



Figure 13: Feeding time at Portrane

Predator Management

“Not on my watch” was a phrase coined by a volunteer during the 2018 project. This statement is central to our attitude towards the predation of our charges. Jackdaws (*Corvus monedula*) were the main predator of 2018 but were only a small threat in 2023. Red foxes (*Vulpes vulpes*) however were present but they failed to impact Portrane 2023. There were no losses of Little Tern chicks or adults to predators this year. A small number of Ringed Plover chicks and one adult were taken in 2023. The loss of the adult resulted in a Ringed Plover nest of 3 eggs being abandoned. A night wardening scheme is essential for the future success of the project. Future discussions with NPWS (M Stack) and F.C.C. (H Visser) will be required to resolve this issue for Portrane. Prior to this year’s project we purchased a number of “fox lights” that we believed would deter night predators. These lights flash, when triggered by movement. More electric fencing shall be required to establish a more secure area for nesting next year. The deployment of electric fencing this year may be one of the reasons why we did not lose any Little Tern chicks to predation. It is hoped that future funding from the NPWS will enable us to purchase the electric fencing necessary. If we have a similar sized colony in 2024 it will be necessary to increase the electric fencing to 800 metres. I suggest that we use a patchwork system similar to Baltray to defend against predators. The electric fencing was activated for night time usage only and was used as a second line of defence. Daytime wardens carry air horns and whistles to ward off avian predators. Avian predators at the Portrane site include sparrowhawk (*Accipiter nisus*), kestrel (*Falco tinnunculus*), peregrine (*Falco peregrinus*), and buzzard (*buteo buteo*). Ground predators this year included foxes and roaming dogs.

Public Awareness

Interaction with beach users

There are four categories of visitors to the beach at Portrane. There are the residents of the burrow who frequent the beach on a regular basis. They have an understanding of what we are about. Many now take an active interest in what is happening at the colony through regular interaction with wardens. Secondly there were the anglers who visited the area in numbers particularly at period around the spring tides. Despite being in close proximity to the colony they had little effect upon it and the birds seen to ignore them. Many of the anglers would stop and chat about the colony and how well it was feeding.

There were also the holiday makers from the caravan parks who may have been visiting for the first time. Once they were informed about what was going on they appeared to supportive of the project. Unfortunately we had a few incidents with photographers this year. We had more joggers this year than in previous years. When the tide was in some joggers ducked under the netting which caused the colony to rise. This year we had more Least Tern seekers from outside of the country than last year. The public's attitude change post covid may have contributed to this increase. Another attraction in the Portrane area was the presence of a Caspian Tern (*Hydroprogne caspia*) from the 9th to the 21st of July. This bird also attracted birders to Portrane. These visitors had little impact upon our breeding birds.

Colony output

		L T Chicks		
Date	Wing	Weight	Darvic Number	BTO
12/06/2023		8.9		NW55937
20/06/2023	57	37.3	BA6	NW55937
	Growth rate	3.55g/m/day		
12/06/2023		11.6		NW55938
17/06/2023		29.3	BC6	NW55938
	Growth rate	3.54g/m/day		
13/06/2023		8.3		NW55940
19/06/2023	36	29.0	BA4	NW55940
	Growth rate	3.45g/m/day		
14/06/2023		9.1		NW87102
21/06/2023	48	35.7	BA9	NW87102
	Growth rate	3.8g/m/day		
14/06/2023		7.3		NW87103
21/06/2023	42	31.6	BA8	NW87103
	Growth rate	3.47g/m/day		
15/06/2023		7.8		NW87104
19/06/2023	24	19.9	BA5	NW87104
	Growth rate	3.03g/m/day		
15/06/2023		7.3		NW87105
28/06/2023	87.0	41.5	BH8	NW87105
	Growth rate	2.63g/m/day		
17/06/2023		8.5		NW87106
19/06/2023	21	16.0	BC8	NW87106
	Growth rate	3.75g/m/day		
17/06/2023		6.3		NW87107
21/06/2023	23	20.1	BA7	NW87107
	Growth rate	3.45g/m/day		
17/06/2023		9.5		NW87108
19/06/2023	23	18.0	BC9	NW87108
	Growth rate	4.25g/m/day		
19/06/2023		7.8		NW87109
23/06/2023	31	19.5	BH6	NW87109
	Growth rate	2.93g/m/day		
19/06/2023		8.9		NW87110
26/06/2023	52.0	35.1	BH7	NW87110
	Growth rate	3.74g/m/day		
20/06/2023		8.7		NW87111
23/06/2023	24	18.2	BH5	NW87111
	Growth rate	3.17g/m/day		



Figure 14: BA9 from L0223

Colony numbers

One of the advantages of the size of the colony at Portrane is that it is easy to get an accurate count of the colony. For the breeding season of 2023 we had a total of 17 pairs of Little Tern plus 5 non- breeders and a Least Tern (*sternula antillarum*). We also had 11 pairs of Ringed Plover. A note for the future is that we need to identify un-ringed adult Little Tern and Ringed Plover sooner. In 2023 we missed an opportunity to identify many of the second phase nesting adults. There is a requirement to purchase another Action camera. This would enable us to identify candidates for our trapping programme sooner. There is a need to deploy an Action camera on a daily basis during certain times of the project to enable us to identify the occupiers of each nest. For the future they could be used to gather information at hatching, egg shell disposal through to the first feeding of chicks. Spare battery packs would also increase the efficiency of data collection.

This year Little Tern counts varied greatly post hatching and in particular post losses. Baltray had a successful year again despite having two heavy loss experiences. Their project finished about 21 days behind us. July 18th we counted 90+ Little Tern roosting in the lagoon and a further 70 on the beach. August 4th saw over 100+ Little Tern at Portrane. This number included Little Tern from 4 separate colonies. In early August we visited Kilcoole and discovered that the breeding season there had completed and the colony was deserted. The Little Tern had finished their work and had dispersed. Baltray still had chicks and the wardens continued their work.

Our post project visits to Rush point revealed hundreds of terns covering seven species at roost. Our first Little Tern egg of 2023 was laid on May 19th it was found at 17:19. Brooding commenced on L0123 on the 21st. L0123 produced our first chicks on June 11th. Our final Little Tern egg was laid on July 7th. The 20th of April saw the 1st group of Ringed Plover pair and begin clutch construction. The final Ringed Plover egg hatched about August 1st.

Table 1: Ringing and biometrics for Ringed Plover

Name			Number of eggs	Number of eggs hatched	Result	Comment
RP01			4	3		
RP02			3		Predated	Re-nested
RP03	PC		4	4		
RP04	PL	PE	4	3		
RP05	PJ		4	3		
RP06			3	3		
RP07			4		Predated	Re-nested
RP08			3		predated	Re-nested
RP09	JP	PN	3	3		
RP10	PK		3	3		
RP11			4		Predated	Re-nested
RP12			4	4		
RP13	CY	CX	4	4		
RP14	JU	PM	4	4		
RP15			4	4		
RP16			3			Abandoned due to predation of adult?
RP17			4	2		Partially destroyed

Nesting locations, Incubation period and clutch sizes

The nest/scrape sites at Portrane are typical in that they are a bare scrape in the shingle. In comparison to Ringed Plover the little tern scrapes are shallower. It has been our experience that Little Tern seldom have a nest that is decorated. It has been recorded that Little Tern usually have between two and three eggs but on rare occasions four. Whereas Ringed Plover have mainly clutches of 4 eggs with the occasional 3 egg nest.

In our experience there is a direct link between the incubation period and the number of eggs being incubated. However, our experiences in 2020 adds a caveat to this statement. Our experiences to date noted that inexperienced breeding birds do not always get it right and thus their immaturity may contribute to a delay in incubation time. Likewise experienced adults are likely to have shorter incubation times. Our observations in 2020 revealed a wider spectrum of incubation times than in 2018. Ehrlich et al suggest that incubation periods vary from 18 to 21 days. In 2020 however we have records of 22 day incubation periods. We are fortunate to have a small colony and these observations are not too difficult to collect. Interestingly Ehrlich et al suggest a general fledging period of 19 to 21 days but add a cautionary “(15-18)” possibility. 2020’s fledglings IV0 to IV5 were most definitely in the 15-18 group whereas IV7 and IV8 were 21 to 22 days. We can safely discount food supply or weather as influencing factors. Portrane has more than enough sand eels, shrimp, and other small fish for both the colony and other tern species that visit. In 2023 the shortest fledging period this year was 20 days, whilst the longest was 21 days. Despite the erosion that took place at Portrane beach again during the winter of 2022 it was agreed that there was a possible area at the North end of the beach for the Little Tern to breed in 2023. We mapped out Area 1 and inserted both the Little Tern and Ringed Plover scrape locations see *Figure 11*.

What unfolded in 2023 at the North end of Portrane beach from May through to end of July added another chapter to the conservation of Little Tern in Dublin. Our work this year has also done much for the conservation of Ringed Plover at Portrane.

How we measure success

At Portrane only those chicks seen in flight are considered fledged. Hence this year we have 13 fledglings. In 2023 we collected more data on the feeding patterns of Little Tern, pre-breeding, brooding, and post hatching. This year we spent more time on ring-reading. Over 600 Darvic rings were read in 2023. We have estimated that we had approximately 25 per cent of the breeding adults recorded at the 3 main East coast colonies. More information regarding our 2018 fledglings was recorded as IZ0 (Eddie) was sighted on the 16th and 18th of July at Portrane. The only unrecorded 2018 fledgling is IZ3. It is always important to reflect upon the reasons as to why we do what we do regarding ringing. In 2018 I was very unsure about ringing Little Tern. However the information we have gathered has allowed us to understand our charges better. We know that at least 12 of our 14 chicks have returned to breed in the British Isles. Since 2018 at least one, one-year old chick has visited Portrane after only one year. The majority of chicks that make it past year one return to these islands as non-breeding birds in year two. Their

second year sees them return to various breeding sites throughout these islands. At Portrane they fly about in groups varying from 2 to as many as nine. They imitate their older counterparts in most behaviours with one exception. They seem unable to settle and seldom breed successfully.

In 2022 we expanded our ringing programme to include Ringed Plover. In 2023 we recorded all of the Ringed Plover adults that had survived last year's project. We know that Little Tern IZ8, IZ7, IZ5 and A5S bred at Portrane this year and produced 6 fledglings. We know that others attempted to breed at Baltray and Kilcoole. Their success in 2023 is unknown. We have no idea who will return next year to breed or where they might breed. From a statistics perspective our team of volunteers have had success in facilitating the colony in 2023. This year we added another 13 Little Tern to our fledgling list. Unfortunately we lost 21 eggs and 1 chick to the sea. Portrane's little tern colony has established itself as an efficient and effective reproducer of Little Tern on Ireland's east coast. We believe that due to the excellent supply of food at Portrane this year's chicks have an excellent chance of returning to breed in the years to come.

Table 2: A History of Little Tern breeding at Portrane

Year	2018	2019	2020	2021	2022	2023
Number of breeding pairs	11	18	05	11	24	17
Number of eggs	27	44	12	26	57	35
Number of eggs lost	09	17	00	00	29	21
Number of nests lost	22	41	00	00	08	11
Number of re-nests	06	03	00	00	06	0
Number of re-nest eggs	12	05	00	00	09	0
Number of re-nests lost	01	03	00	00	04	0
Number of re-nests eggs lost	02	05	00	00	05	0
Total eggs laid	39	49	12	26	66	35
Total eggs hatched	15	03	12	26	37	14
Total eggs fledged	14	03	09	24	06	13
Total chicks ringed	13	02	08	25	31	13
Mortification of chicks	01	00	03	02	31	01

N.B. 2018 statistics are based upon an estimation of the original nests lost added to the actual output,

Table 3: Ringing and biometrics for Little Tern 2023

2023	L0123	A9B	A8T			Family of 3 1 egg infertile	
				BC6		Fledged	
				BA6		Fledged	
2023	L0223	BC4	A9J	BA4		Family of 3 Fledged	
				BA8		Fledged	
				BA9		Fledged	
2023	L0323	A9H	IZ8	BA5		Family of 2 Fledged	
				BH8		Fledged	
2023	L0423	B0B	B0X	BA7		Family of 3 Fledged	
				BC8		Fledged	
				BC9		Fledged	
2023	L0523	IZ5	A8S	BH5		Family of 3 Fledged	
				BH6		Fledged	
				BH7		Fledged	
2023	L0623	IZ7	BC5			Family of 1 Lost to tide July 7th	
2023	L0723	BJ0	BHX			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L0823	A1J	B2J			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L0923	Unk	A9E			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L1023	BHZ	A8Z			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L1123	BJ3	Unk			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L1223	Unk	Metal R			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L1323	Unk	Unk			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L1423	Unk	Unk			Family of 2 Lost to tide July 7th	
						Lost to tide	
2023	L1523	Unk	A5S			Family of 2 Abandoned July 22nd	
						Abandoned	
2023	L1623	Unk	Unk			Abandoned July 8th	
2023	L1723	Unk	Ukm			Abandoned July 7th	

Table 4: A History of Little Tern families at Portrane

Year	Code	Sex	Comment	Breeding
2018	IZ0		single chick, seen in Gronant, Wales July 21 2020	
2018	IZ1		family of 3	
2018	IZ2		family of 3, seen in 2020	
2018	IX2		family of 3	
2018	IZ3		family of 2	
2018	IZ4		family of 2	
2018	IZ5	M	family of 2, seen in 2020, Baltray	2022 3E
2018	IZ6	M	family of 2, seen in 2020, Portrane	2021 2F 2022 2E
2018	IZ7	M	family of 2, sibling unringed	
2018	IZ8	F	family of 2, female	2021 2F 2022 3E
2018	IZ9	M	family of 2, seen in 2020, Portrane	2022 2E
2018	IX0	F	family of 2, seen in 2020, Portrane	2021 2F 2022 3E
2018	IX1	F	family of 2, seen in 2020, Portrane	2022 2E
2019	IX4		Family of 3, 3rd one not ringed	
2019	IX5		Family of 3, 3rd one not ringed	
2020	IV5		family of 2, sibling unringed	
2020	IV0		family of 2	
2020	IV1		family of 2	
2020	IV2		family of 3, not seen after fledging, siblings have been seen multiple times	
2020	IV3		family of 3	
2020	IV4		family of 3	
2020	IV7		family of 3	
2020	IV8		family of 3	
2020	IV9		family of 3, Disappeared on or before 18th July, prior to fledging, remains found 2/8/20, was not predated.	
2021	A0E		Family of 3	
2021	A0C		Family of 3	
2021	A0J		Family of 3	
2021	A0A		Family of 2	
2021	A0B		Family of 2	
2021	A0L		Family of 3	
2021	A0N		Family of 3	
2021	A0K		Family of 3	

2021	A1K		Family of 2	
2021	A1J		Family of 2	
2021	A0H		Family of 2	
2021	A0Z		Family of 2	
2021	A1A		Family of 2	
2021	A1B		Family of 2	
2021	A0T		Family of 2	
2021	A0S		Family of 2	
2021	A0P		Family of 2	
2021	A0V		Family of 2	
2021	A1C		Family of 3	
2021	A1E		Family of 3	
2021	A1H		Family of 3	
2021	A2Z		Family of 2	
2021	A3A		Family of 2	
2021	A5S		Family of 2	
2021	A5T		Family of 2	
2022	B1P		Family of 3 fledged	
2022	B0E		Family of 3 predated	
2022			Family of 3 Cracked	
2022	B0P		Family of 3 predated	
2022			Family of 3 dead	
2022			Family of 3 dead	
2022	B0A		Family of 3 predated	
2022			Family of 3 predated	
2022	B0D		Family of 3 predated	
2022	B0C		Family of 2 predated	
2022	B0J		Family of 2 predated	
2022	B0K		Family of 3 predated	
2022	B0L		Family of 3 predated	
2022	B0S		Family of 3 predated	
2022	B1B		Family of 2 predated	
2022	B0H		Family of 2 predated	
2022	B1J		Family of 3 predated	
2022	B1D		Family of 3 predated	
2022	B1H		Family of 3 predated	
2022			Family of 3 predated	
2022	B0V		Family of 3 predated	
2022			Family of 3 cracked	
2022			Family of 2 predated	
2022			Family of 2 predated	

2022	B1K		Family of 3 predated	
2022	B1L		Family of 3 predated	
2022			Family of 3 predated	
2022	B0Z		Family of 3 predated	
2022	B1A		Family of 3 predated	
2022			Family of 3 predated	
2022			Family of 2 predated	
2022			Family of 2 predated	
2022			Family of 2 predated	
2022			Family of 2 predated	
2022			Family of 2 predated	
2022			Family of 2 fledged	
2022			Family of 2 fledged	
2022			Family of 2 fledged	
2022			Family of 2 non-viable	
2022			Family of 2 fledged	
2022			Family of 2 fledged	
2023			Family of 3 1 egg infertile	
2023	BC6		Fledged	
2023	BA6		Fledged	
2023	BA4		Family of 3 Fledged	
2023	BA8		Fledged	
2023	BA9		Fledged	
2023	BA5		Family of 2 Fledged	
2023	BH8		Fledged	
2023	BA7		Family of 3 Fledged	
2023	BC8		Fledged	
2023	BC9		Fledged	
2023	BH5		Family of 3 Fledged	
2023	BH6		Fledged	
2023	BH7		Fledged	
2023			Family of 1 Lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	
2023			Family of 2 lost to tide	

2023		Family of 2 lost to tide	
2023		Family of 2 lost to tide	
2023		Family of 2 lost to tide	
2023		Family of 2 lost to tide	
2023		Family of 2 lost to tide	
2023		Family of 2 lost to tide	
2023		Family of 2 abandoned	
2023		Family of 2 abandoned	
2023		Family of 1 abandoned	
2023		Family of 2 abandoned	

Sightings and re-sightings

For convenience of reporting, sightings of Darvic ringed birds at Rush Point and Portrane are considered as one area. Over 600 sightings from approximately 136 birds were recorded by Daniele Gioppo, Paul Lynch, Jan Rodd and myself at Kilcoole, Baltray, Gormanstown, Mosney, Laytown and Portrane/Rush roosting sites. On June 3rd HC2 was sighted by Daniele at Kilcoole. This bird had been trapped in Senegal in April 2023. This bird was re-sighted again on the 10th. Another bird possibly part of the trapping programme in Senegal was HIH seen at Portrane July 3rd.

Biometric data

At Portrane 2023 biometric data was collected on Ringed Plover chicks and Little Tern adults and chicks. Biometrics are collected only at ringing sessions to reduce any possible stress or disturbance to the nesting birds. The data below represents a total of 34 biometric readings of Little Tern adults and chicks and 17 of Ringed Plover taken on adult birds and chicks this year during the ringing sessions.

In Table 2 below (♀) = Female (♂) = Male (Unk) = Unknown.

Table 5: Little Tern adult biometrics

		L T Adults		
Date	Wing	Weight	Darvic Number	Gender
27/05/2023	179	51.8	A9J	Unk
12/06/2023	180	55.4	BC4	♂
12/06/2023	174	52.2	BC5	♀
28/06/2023	172	53.2	BHX	♀
29/06/2023	175	50.3	BHZ	♂
29/06/2023	177	51.1	BJ0	♂
03/07/2023	175	56.3	BJ2	♀
03/07/2023	175	56.7	BJ3	♂

Table 6: Little Tern chicks Biometrics and Rings

		L T Chicks		
Date	Wing	Weight	Darvic Number	BTO
12/06/2023		8.9		NW55937
12/06/2023		11.6		NW55938
13/06/2023		8.3		NW55940
14/06/2023		9.1		NW87102
14/06/2023		7.3		NW87103
15/06/2023		7.8		NW87104
15/06/2023		7.3		NW87105
17/06/2023		8.5		NW87106
17/06/2023		6.3		NW87107
17/06/2023		9.5		NW87108
17/06/2023		29.3	BC6	NW55938
19/06/2023		7.8		NW87109
19/06/2023		8.9		NW87110
19/06/2023	21	16.0	BC8	NW87106
19/06/2023	23	18.0	BC9	NW87108
19/06/2023	36	29.0	BA4	NW55940
19/06/2023	24	19.9	BA5	NW87104
20/06/2023		8.7		NW87111
20/06/2023	57	37.3	BA6	NW55937
21/06/2023	23	20.1	BA7	NW87107
21/06/2023	42	31.6	BA8	NW87103
21/06/2023	48	35.7	BA9	NW87102
23/06/2023	24	18.2	BH5	NW87111
23/06/2023	31	19.5	BH6	NW87109
26/06/2023	52.0	35.1	BH7	NW87110
28/06/2023	87.0	41.5	BH8	NW87105

Table 7: Biometrics of Ringed Plover adults

		R P Adults		
Date	Wing	Weight	Darvic Number	Gender
27/05/2023	136	54.1	HU	♀
08/06/2023	136	66.8	CT	♀
08/06/2023	138	64.0	CX	♂

Table 8: Biometrics and Rings of Ringed Plover chicks

	R P Chicks			
Date	Wing	Weight	BTO	Darvic
19/06/2023	47	28.6	NW12959	Unk
19/06/2023	42	27.3	NW12991	Unk
21/06/2023	62	31.8	NW12992	EP
21/06/2023	49	29.5	NW12993	EN
26/06/2023	65	30.6	NW1299x	EM predated
29/06/2023	83	41	NW12994	EL
29/06/2023	96	48.6	NW12995	EK
30/06/2023	94	41.9	NW12991	EU
12/07/2023	23	18.5	NW12996	Unk
17/07/2023	41	20.8	NW12997	Unk
24/07/2023	45	25	NW12998	Unk
28/07/2023	60	34.4	NW12999	EH
28/07/2023	19	18.4	NW13000	Unk
07/08/2023	92	44.9	NW87116	EE

Table 9: Little Tern egg biometrics.

Nest No.	No. of eggs	Length	Width	Weight
L0123	3	32.2mm	23.1mm	8.6grm
		31.4mm	23.4mm	9.0grm
		32.0mm	23.2mm	8.7grm
L0223	3	31.6mm	23.5mm	9.3grm
		31.6mm	24.6mm	9.8grm
		31.9mm	24.0mm	9.6grm
L0323	2	31.8mm	23.4mm	9.3grm
		33.2mm	23.5mm	9.9grm
L0423	3	32.2mm	23.4mm	9.0grm
		31.9mm	23.4mm	8.5grm
		31.9mm	22.7mm	8.7grm
L0523	3	32.5mm	24.2mm	9.0grm
		33.2mm	23.6mm	9.3grm
		34.4mm	24.5mm	9.9grm
Average		32.3mm	23.6mm	9.2grm



L0823

L1023



L0723



L1123

Figure 15: Some nest sites from 2023

Human disturbance

There was a decrease in the number of holidaying visitors to Portrane beach in 2023. This may have been due to the weather conditions. Despite the increase in project signage many of the new visitors to Portrane were completely unaware of the project. Interestingly the locals commented at the beginning of May that we were late this year. It was a far cry from 2018. Most of our visitors did take an interest and showed an appreciation for the work we were doing. There were others who were problematic. A few climbed through the outer perimeter despite the signage requesting them to stay away and use alternative paths. There were a number of photographers who misbehaved. There was also a locked gate incident that caused us a great inconvenience. The adult birds did get used to the daily walkers. This year however all of the breeding pairs were more nervous and that may have been down to the narrow nature of the site.

We had a number of drones that were problematic at the beginning of the project but were less of an issue later. Again their owners were controlling them from North of the river. We do have signage requesting drone operators not to use them near the colony but this signage is restricted to south of the river.

Other breeding avian species at Portrane

This year we counted at least 16 nesting attempts of Ringed Plover (*Charadrius hiaticula*), 2 of Skylark (*Alauda arvensis*), again one male appeared to have two females and therefore we had 3 nesting sites. We had in excess of 10 Meadow Pipit (*Anthus pratensis*), and 1 stonechat (*Saxicola rubicola*). Two Ringed Plover clutches were completed and a number of others started before any little tern had laid an egg. At this time we had counted 9 Ringed Plover nest sites. Those clutches that were situated outside the fencing were highly vulnerable to predation. Our ever present corvids contributed to demise of at least five nests. Fox prints were also found outside the site and it is believed that they contributed to the destruction of these nests. Unlike 2022 many of the birds re-nested either nearer to or within the site itself. It appeared as if they realised that it was safer location at which to nest. As the Ringed Plover nests within the site hatched and their chicks moved elsewhere this freed up space within the site for re-nesting pairs. Although some of these chicks were predated many survived to fledge. Ringed Plover chicks are extremely vulnerable to predation as they wander unprotected to the tide line at all times of the day. This behaviour brings them close to *Larus* ssp. 2023 two Grey heron (*Ardea cinerea*) patrolled this area on a daily basis. As the season progressed the Ringed Plover that had lost their nests had success with their second attempts. Thus the total number of Ringed Plover eggs laid was lower than in 2022. To our knowledge only 2 pairs made a 3rd attempt at nesting. The 2 nests were still active after we deconstructed the site. Two eggs from four hatched despite the nest site being damaged. It appeared that children had been playing on the beach nearby and two eggs were broken with almost fully chicks inside. Three eggs from the second nest were abandoned after one of the adults was predated. Both Skylark pairs produced two broods of chicks and fledged four clutches. There were many sightings of Meadow Pipit fledglings this year. This may have been due to the late arrival of the kestrel. The stonechat pair had 2 fledglings.

Review

The breeding season 2023

We now have six breeding seasons behind us. If we have a beach in 2024 we are reasonably confident that we would get fledglings away. On Friday April 28th 2 little tern flew over the point at the northern end of Rush beach. The following day I visited Kilcoole and counted 70+ Little Tern. Having had the experiences since 2018 we were better informed as to how to go about the business of little tern conservation in 2023. We were unable to construct our site on the May Bank Holiday as scheduled and it wasn't until May 13th that Areas 1 was constructed. This unfortunately allowed human and canine disturbances to the nesting area and thus many of the pairs moved north to Baltray.

Our daily visits to Portrane recorded varying numbers of little tern adults at the roost. It should be noted that the time of day and tide position are important in relation to pre-nesting little

tern observations. When I visited the site on the May 10th I had 30+ Little Tern over the beach at 16:54. The following day I returned and the numbers had dropped to about 13. The inclement weather conditions of 2023 probably kept visitors to the beach to a minimum. Physical damage to the site this year was not as severe as in previous years. There were only 2 occasions where we had to repair the site. One was some minor damage to Area 1 due to a high tide. The second was more serious storm damage resulting in egg loss of both tern and plover. It was the cause of the complete failure of the second phase nesting attempt by Little Tern. Due to the lateness in the year of the storm the Little Tern did not re-nest. Our 1st Little Tern egg was laid on the 19th of May in L0123. This nest was just below the highest point of the shingle behind the vegetation. By May 22nd L0223 was under construction. We had a Little Tern colony again and all of our avian neighbours were busy brooding. In 2023 we managed to keep predation to a minimum. This year the corvid threat was from rook *Corvus frugilegus* and Eurasian Magpie *Pica pica* with the occasional hooded crow *Corvus cornix*. The rooks and magpie were persistent and unwelcomed visitors throughout the project. By the 3rd week of May the Ringed Plover nests within Area 1 had begun to hatch. Those that had been predated had re-located closer to Area 1. Unlike the terns their nests were much further apart and were thus much more difficult to observe. Ringed Plover nests can be found on the shingle or inside tufts of marram and so were difficult to observe. A total of 35 Little Tern eggs were laid, the mean clutch size was 2.8 eggs per nest for phase 1 and 1.75 for Phase 2. Phase 1 had a single infertile egg 1 and the remaining 13 eggs fledged. Phase 2 produced 1 chick however this chick was killed during a storm surge. The remaining 20 eggs failed to produce any chicks.

Conclusion

Portrane little tern project 2023 has once again presented those who wardened with new challenges. Without the wardens to protect the site the beach would be devoid of breeding Little Tern. We can say with some certainty that overall we have had a good 2023. If we measure our project's outcome based upon fledglings produced we have had our most productive Ringed Plover year ever with 33+ fledged. The learning experience, the shared social capital, the observation data gathered. The 17 breeding pairs of little tern, the 35 eggs laid, the 14 hatched chicks and the 13 fledged chicks must be considered when measuring success. This year taught us that it is critical that site construction must take place in early May. With the level of erosion in 2023 we have no idea where nesting might occur in 2024. It may be on the western side of the lagoon. Like in 2023 it will be the winter storms and the birds themselves that will decide whether Portrane 2024 will be a breeding site for Little Tern. The early start to the nesting period in 2023 gave us a lead on the breeding sparrowhawk and kestrels and so reduced the stress of their visits. Finally, my gratitude to the people of BWI Fingal who asked me to participate in this project and for their support. To participate in the protection and preservation of our heritage is indeed a worthwhile privilege. To the public who despite the inconvenience we caused to their leisure

time thanks for your curiosity, acceptance, cooperation and toleration. Without this we would surely have failed. To the agencies, Fingal County Council, National Parks and Wildlife Service and Birdwatch Ireland thank you for your resources, support, and approval. Most importantly to Hans Visser without who's help we would surely have never got started. The volunteers, you came, your efforts protected our charges and once again gave hope for Little Tern and their neighbours at Portrane. A motley crew, your commitment, enthusiasm, and resolve made possible a shale full of wonder. Because of you there are 13 new Little Tern and 33 + Ringed Plover from Portrane. It is a wish that some of the 2023 chicks might return to breed sometime in the future and continue their species.



Figure 16: The clean up

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