Osprey Conservation Plan – Gilestone Farm

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Executive Summary

The Osprey, a bird of prey which feeds exclusively on fish and migrates mainly to West Africa for the winter, is one of the rarest and most spectacular birds in Wales. There were eight known breeding pairs in 2023 and, as such, every nest site is of considerable national importance.

In summer 2023 a male Osprey built a nest in an oak tree at Gilestone Farm, Talybont-on-Usk, and attracted a female. It is highly likely, given the usual behaviour of young Ospreys, that the birds will return to the site in 2024 and attempt to breed for the first time. The present breeding range of the species in Wales extends from Llyn Brenig in the north, to Llyn Clywedog in the south. The Gilestone Farm nest, lying 82 miles south of Llyn Brenig, and 40 miles south of Llyn Clywedog, is thus of particular significance, given that it doubles the current geographical range of the species within Wales.

The Osprey is protected as a Schedule 1 species under the Wildlife and Countryside Act 1981. This highest level of legal protection means it is an offence to disturb it when it is building a nest, or at any stage of the breeding season. Furthermore, the nest itself is protected year-round. This plan sets out the conservation measures required to protect the Ospreys, particularly in relation to other activities that currently take place, or are planned for the future, at Gilestone Farm, which is owned by Welsh Government.

Recommendations outlined in the plan include the installation of a CCTV camera system at the nest and establishment of specific exclusion zones to prevent disturbance to the Ospreys. The presence of Ospreys in other parts of Wales generates great interest and has been shown to give a significant boost to the rural economy through increased visitor spending. The Ospreys at Gilestone Farm thus present an exciting ecotourism opportunity. As such, it is also recommended that a public viewpoint is established and live images from the nest streamed online in 2024.

The plan also outlines the monitoring required to record the breeding behaviour of the Ospreys and to enhance security. It is recommended that an Osprey Steering Group is set-up to oversee the implementation of the plan and to undertake a formal annual review of the effectiveness of the exclusion zones and other conservation measures.

1. Aim and scope of the plan

The Osprey *Pandion haliaetus* is an extremely rare breeding species in Wales. In 2023 eight breeding pairs reared a total of 18 young at sites in North and Mid Wales, with the most southerly nest at Llyn Clywedog in Powys. Ospreys generate significant public interest, with several public viewing sites attracting thousands of visitors each summer and thus providing a significant boost to the rural economy.

As numbers of Ospreys have increased in Wales, the species has become regular visitor to the Usk valley, particularly since 2021. In summer 2023 a male Osprey built a nest in an oak tree at Gilestone Farm and attracted a female. It is highly likely, given the usual behaviour of young Ospreys, that the birds will return to the site in spring 2024 and attempt to breed for the first time. This would be a significant development in the conservation of Ospreys in Wales given that the site is more than 40 miles south of Llyn Clywedog and 82 miles south of the most northerly nest, at Llyn Brenig, thus doubling the range of the species within the country.

As a Schedule 1 species under the Wildlife and Countryside Act, the Osprey has the highest level of legal protection, making it an offence to disturb a breeding pair, whether intentionally or otherwise, at their nest. The nest itself is also protected year-round. Further details are included in section 4.

The key aim of this plan is to set out the conservation measures required to protect the Ospreys at Gilestone Farm, including the establishment of exclusion zones around the nest. In addition, the plan outlines the monitoring required to record the breeding behaviour of the Ospreys and to enhance security. It also explores potential eco-tourism opportunities.

It is recommended that an Osprey Steering Group is set-up to oversee the implementation of the plan and to undertake a formal annual review of the effectiveness of the exclusion zones and other conservation measures.

2. The Osprey in Wales

The Osprey is exclusively piscivorous and readily breeds close to freshwater and saltwater habitats (Poole 1989, Dennis 2008).

The species' fishing prowess has been well known for centuries, and evidence suggests that its piscivorous diet led to extensive persecution across Europe. Yalden and Albarella (2009) estimated that there may have been as many as 3,800 breeding pairs in Mesolithic Britain and historical references indicate the Osprey was still widespread during the tenth and eleventh centuries. Dennis (2008), however, suggests that the early selective-killing of fish-eating raptors occurred across Britain and Western Europe during the Middle Ages due to the strict religious requirement to eat fish on Fridays, and that this led to dramatic declines in the numbers of breeding Ospreys.

Although there are no historical breeding records of Ospreys in Wales, it seems likely that this is because the species was exterminated before ornithological records were kept (Dennis 2008). Evans (2014) reported that a Flemish engineer working on wetland drainage systems on the Dyfi estuary in Mid Wales in 1604 mentioned several 'fishery hawks' breeding close together along the banks of the River Dyfi. Meanwhile, the wildlife historian Twm Elias recorded at least ten different names for the Osprey in Welsh, dating back to 1604 (Evans 2014). Furthermore, the coat-of-arms of the city of Swansea, granted in 1316, and of West Glamorgan both feature an Osprey (Mackrill 2019). This evidence, coupled with the species' ecological requirements, imply that the Osprey was probably widespread in Wales, before being persecuted to extinction.

The Osprey recolonised Wales in 2004, when breeding pairs were found at two sites (Evans 2014). By 2023 there were at least eight breeding pairs, with a total of 149 chicks fledging since 2004. Young Osprey usually breed for the first time at three-five years of age (Dennis 2008) and males in particular tend to show strong natal philopatry, usually, but not always, choosing to breed close to their natal site (Dennis 2008, Poole 2019). Females, on the other hand, may disperse considerable distances, as exemplified by the fact that five different females originating from the Rutland Water population in central England have bred successfully in Wales since 2011, while two females from Poole Harbour in Dorset have bred at sites in the Glaslyn valley in North Wales.

Once a pair is established at a nest, they tend to show strong site fidelity and can breed for ten years or more (Poole 1989, Dennis 2008). Satellite tracking and colour ringing studies have shown that most Ospreys from the UK winter in West Africa, with smaller numbers in Portugal and Spain (Mackrill

2017). Breeding birds return to nests in late March and early April and remain until late August or early September.

Young Ospreys usually spend the whole of their second calendar year on the wintering grounds, before returning to their natal area for the first time in the spring of their third calendar year (Dennis 2008, Mackrill et al. 2013, Poole 2019). Young birds prefer to take over an established nest than build their own, and so active nests are regularly visited by young non-breeders prospecting future breeding sites (Dennis 2008, Mackrill 2019). This means that if a breeding bird fails to return, it is usually replaced by another, and, as such, the same nests are often used by successive generations of Ospreys (Dennis 2008). Nevertheless, some young birds build their own nests and these individuals can be key in the geographical expansion of the population. This is particularly the case if they build at a site away from the existing core range, as observed in the Usk valley.

3. Ospreys in the Usk Valley

There has been a notable upturn in the number of Ospreys visiting the Usk valley in recent years, culminating in a male Osprey building a nest at Gilestone Farm during June and July 2023, and pairing up with a female. Much of this activity has been document in the Breconshire Bird Reports for 2021 and 2022 (in press). Additional data has been supplied by Andrew King, Breconshire bird recorder.

On 30th March 2021 a blue-ringed male Osprey was observed fishing at Llangorse Lake. This bird was subsequently identified as JW2, which had been ringed as a nestling at Loch Lomond in Scotland in 2018. Given its age, this individual was unlikely to have an established territory further north, and it subsequently spent much of the spring in and around the Usk valley, being observed on at least four occasions at Gilestone Farm between 1st April and 22nd May, as well as at Llangorse Lake. There were no confirmed sightings of this bird during June and July but it may have been one of a group of three Ospreys seen in the area on 4th August. An individual was also seen 4km downstream of Gilestone Farm at Tor-y-foel, Llandetty on 14th August.

Sightings became even more frequent during 2022. The first sighting was on the River Usk near Brecon on 11th May, and there followed in excess of 20 observations of summering Ospreys in an area spanning some 20km of the Usk valley, between Brecon and Crickhowell, including Llangorse Lake and with Gilestone Farm at the centre. Two birds were seen together on a number of occasions, but there were no confirmed sightings of JW2, although it was suspected that this bird was one of those present

in the area. Interestingly it was observed and photographed at its wintering site at the Sine Saloum Delta in Senegal by the same observer, ornithologist Jean-Marie Dupart, on 8/12/21 and 14/12/22.

In 2023 there were a total of ten sightings of Ospreys at Llangorse Lake during May, and another observation of a bird at Old Ford, Llanhamlach on 29th May. A female, photographed at Llangorse on 28th May, had a blue ring on its right leg. The colour rings currently used on Ospreys in the UK have a three-digit inscription, and although only the first digit and part of the second were visible on the best photo taken that day, this was sufficient to indicate it was likely to be one of two two-year-old females from Poole Harbour in Dorset which were seen in Wales during 2023 (Figure 1), and most likely 379, a female which was observed intruding at the Cors Dyfi nest in Mid Wales on 1st May. Two other Poole Harbour females bred successfully in Wales in 2023 and a third, 372, paired with a young male at a nest in North Wales.

Figure 1. Female Osprey with a blue ring on its right leg, Llangorse Lake on 28th May 2023 (photo by Will Lewis)

The fist sighting of the year at Gilestone Farm was made on 1st June. Two birds, an unringed male and a female with a blue ring on its right leg (likely the bird seen at Llangorse Lake on 28th May) were perched together on a riverside dead tree at Gilestone Farm on 17th June and it is thought that the male began nest building around this time. No nest was present on 1st June, but by the end of the

month a significant structure had been constructed in the top of an oak tree near the river, by the Ospreys, with the majority likely undertaken by the male (Figure 2). This is the typical time of year for young Ospreys to build a nest.

Figure 2. The unringed male perched on the nest (photo by Steve Wilce).

Figure 3. The unringed male taking off from the nest (photo by Steve Wilce).

The two birds remained in the vicinity of the nest at Gilestone Farm for the remainder of the summer and were also frequently seen at Llangorse Lake. The nest visibly grew in size during July and August (Figure 4) and the two birds were still present together on 28th August, when they were photographed in a dead tree near the nest (Figure 5).

Figure 4. A view of the nest, taken on 26th August 2023 (photo by P.J. Seaman).

The female was not seen after 28th August, but the male remained at Gilestone Farm into early September, with the last sighting on 6th.

Figure 5. The Osprey pair (female on left) at Gilestone Farm on 28th August 2023 (photo by P.J. Seaman).

4. Legal protection of Ospreys and relevance to Gilestone Farm

The Osprey is listed as a Schedule 1 species under the Wildlife and Countryside Act 1981 (WCA), giving it the highest level of legal protection.

Section 1 of the legislation (https://www.legislation.gov.uk/ukpga/1981/69/section/1) states the following:

> 5) Subject to the provisions of this Part, if any person intentionally or recklessly—
>
> (a)disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
>
> (b)disturbs dependent young of such a bird,
>
> he shall be guilty of an offence.

In addition, Osprey nests are protected throughout the year, even when not in use, because the species is listed with two others (Golden Eagle *Aquila chrysaetos* and White-tailed Eagle *Haliaetus albicilla*) on Schedule ZA1 (Birds which re-use their nests), as follows:

Section 1 of the WCA states the following:

> 1) Subject to the provisions of this Part, if any person intentionally—
>
> (a) kills, injures or takes any wild bird;
>
> (aa) takes, damages or destroys the nest of a wild bird included in Schedule ZA1;
>
> (b) takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
>
> (c) takes or destroys an egg of any wild bird,
>
> he shall be guilty of an offence.

Having built the nest and summered at the site, evidence from other areas indicates that it is highly likely that the Ospreys will return and attempt to breed for the first time in 2024 (Dennis 2008, Mackrill et al. 2013). Even if one of the birds was to fail to return, the increasing number of Ospreys in Wales means that the missing individual would likely be replaced by a different Osprey. Given the protected status of the Osprey and the significance of the nest from a conservation perspective, particularly in relation to the continued recovery of the species in Wales, it is essential that steps are taken to ensure that the birds are protected. As described above, the location of the nest effectively doubles the range of the Osprey in Wales.

5. Nest site

5.1. Nest site location

The nest is located in the top of an oak tree situated in arable fields adjacent to the River Usk, in the North-West of the Gilestone Farm land holding (Figure 6 and Figure 7). The Ospreys were regularly observed foraging at Llangorse Lake, situated 1.6 miles to the north-east, and in the River Usk, during the course of summer 2023. Interestingly an artificial nest had been constructed in the same tree more than 15 years ago, in an effort to attract Ospreys into the area, but was not successful (A. King *pers. comm.* 2023). The structure was not maintained and was eventually blown out of the tree, leaving just a single timber support located approximately one metre below the natural nest built by the Ospreys in 2023. This is visible in Figure 9.

Figure 6. Aerial imagery showing the location of the nest, close to the River Usk.

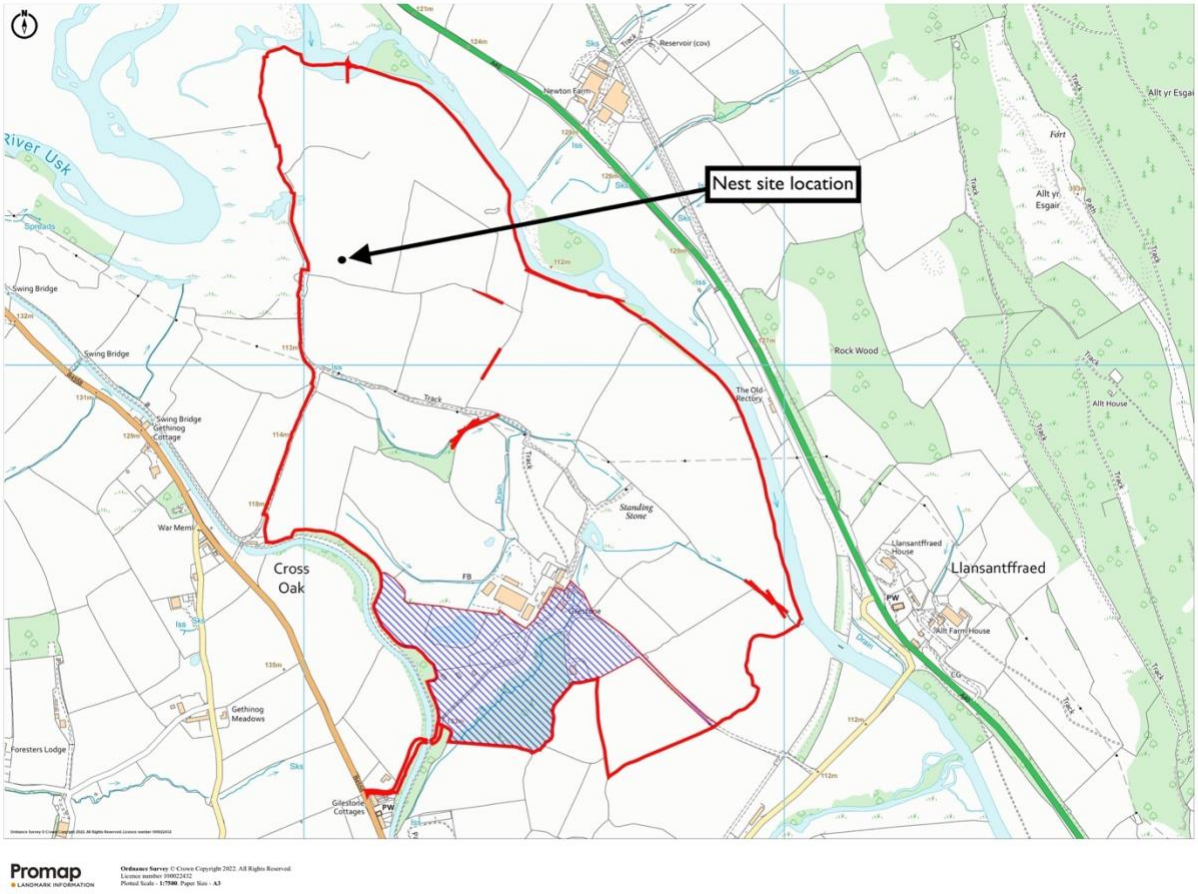

Figure 7. Location of the nest on Gilestone Farm land holding (red line = boundary)

Figure 8. View of the nest and nest tree from a drone, November 2023

5.2. Condition of nest

On 14th November, over two months after the Ospreys left the site, a visual inspection of the nest was caried using a drone. Almost all of the structure was still intact despite recent heavy rain and strong winds, but it was noted that the branches supporting the nest appeared relatively weak and, potentially, prone to breaking (Figure 9 and Figure 10).

Figure 9. Drone view of the nest with last remaining timber support from original artificial nest just visible.

Figure 10. Drone view of the nest, showing supporting branches.

Ospreys show very high nest site fidelity and once a pair become established at a nest, the same site can be used by successive generations because young birds generally prefer to take over at an established nest than construct their own (Poole 1989). Some Scottish nests have been occupied since the early 1960s for this reason (Dennis 2008). The fact that the same nest is used each year means they can become very large, heavy structures which are prone to collapsing. Where there is a risk of this occurring a more secure artificial nest can be installed in the tree, which Ospreys readily accept. This work was pioneered by Roy Dennis during the early years of the Scottish recovery in the 1960s and 1970s and is now standard conservation practice, which has greatly facilitated the Osprey's re-establishment in the UK (Dennis 2008). This methodology was used successfully at the Glaslyn nest in North Wales where a pair nested for the first time in 2004. That year, the nest, built by Ospreys on top of a pine, collapsed in summer storms, killing the two chicks. An artificial nest was constructed in its place and was used by the birds the following year. The nest has been occupied each year since with a total of 47 chicks fledging successfully (Glaslyn Ospreys 2023).

It was noted that the branches supporting the nest appeared relatively weak, with some evidence of rot, when the drone survey was carried out on 14th November. This means they may be vulnerable to collapsing under the weight of the nest, particularly during periods of heavy rain and high winds. It is possible that the existing structure could be secured with supports, or it may be necessary to build a replacement nest in the adjacent part of the crown, where there is no issue with rotting timber, as indicated in Figure 11. This structure would be built to look as natural as possible and experience shows that it will be readily accepted by the Ospreys. It was not possible to determine the best course of action without climbing the tree, but either option will require a licence from Natural Resources Wales (NRW). It is therefore recommended that a licence is applied for as soon as possible, covering the two alternative methods. One possibility would be to secure the existing nest prior to the return of the Ospreys in 2024, and then, if necessary, install a replacement structure the following winter. [Edit – a licence application was submitted to NRW on 21st December 2023. Further investigations were carried out on 16th January, after consultation with NRW. This indicated that the existing nest structure could be secured in its current location.]

There are a number of dead trees in close proximity to the nest and along the River Usk. These provide excellent perching opportunities for Osprey and it is important that they are left in situ.

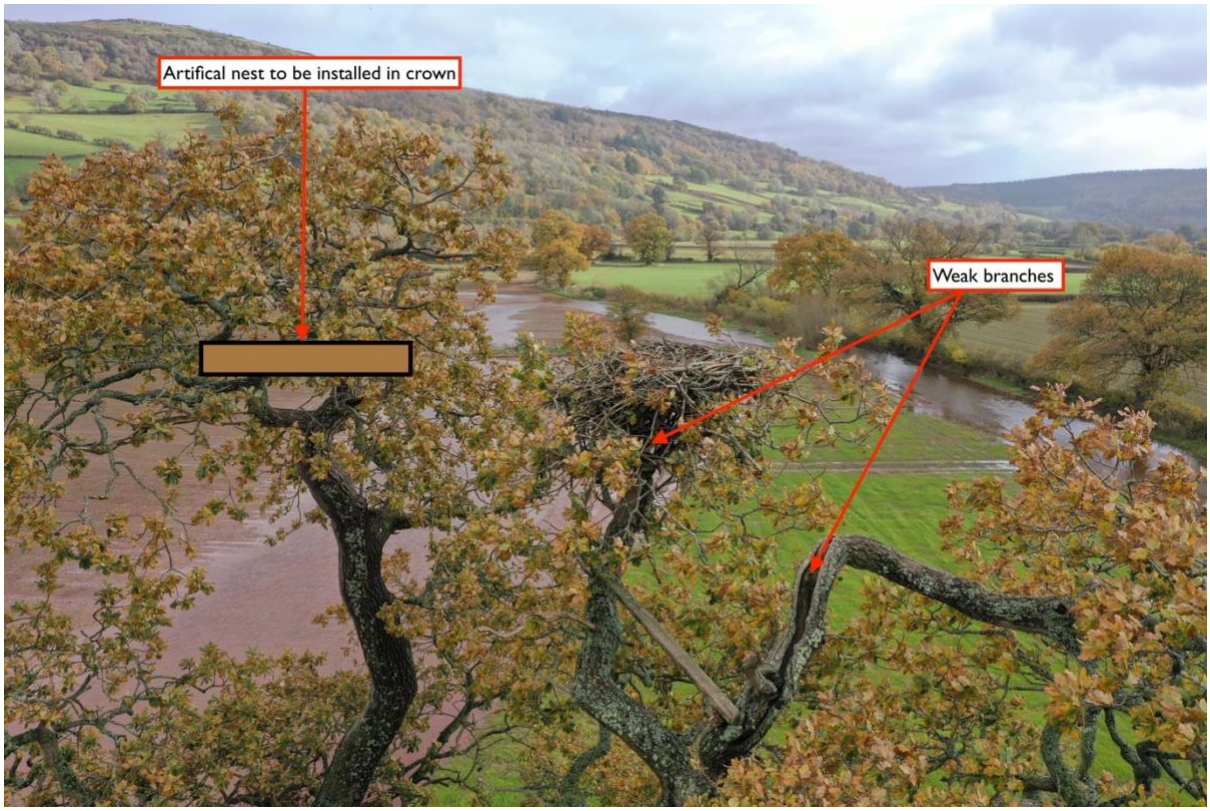

Figure 11. Proposed location of new nest, if further investigation shows it is required.

5.3. Installation of CCTV and other security measures at the nest

The presence of the Ospreys in the Usk valley is likely to create significant public interest, and indeed this has already proved to be the case, with an article appearing in The Times on 15th September 2023. It is important, therefore, that consideration is given to how the nest can be protected should, as is likely, the Ospreys return in 2024.

Two intrusion detection cameras were installed at ground level adjacent to the nest tree during summer 2023. These cameras are monitored on a 24-hour basis by a security company, with an agreed response protocol. There are two detectors, located on opposite sides of the nest tree, each providing 360-degree security over a radius of approximately 12.5m (Figure 12, also see Figure 8). When triggered, the detectors sound a voice message warning that police have been notified, and capture a short video clip. It has been agreed that this this system is kept in place throughout winter 2023/24 in addition to the period when the Ospreys are present, as an additional security measure.

In addition to the intrusion detection cameras, signs have been placed on gates and key access points around the farm. The signs state there is no access and that video surveillance is in operation. CCTV cameras will be installed at key access points into the farm over winter 2023/24.

Figure 12. Location of intrusion detection cameras, situated either side of the nest tree.

Closed circuit television (CCTV) cameras are routinely fitted to Osprey nests both as a nest protection method, and as a public engagement tool. Live footage from other Osprey nests in Wales in the Glaslyn valley, at Cors Dyfi, Llyn Brenig, and Llyn Clywedog is streamed online to an audience of thousands and generates great interest. Climbing the tree to undertake remedial work would provide an opportunity to install such a system on the Gilestone Farm nest. It is recommended, therefore, that an application is made to NRW to undertake work to secure the nest, as detailed above, and to install a CCTV camera system. This application should be made before Christmas 2023 so that work can be undertaken prior to the Osprey's return in late March/early April 2024. It is recommended that the camera system enables footage to be viewed live, continuously recorded on site, and streamed online. In addition to the camera sited in the tree, a second wide-angle camera with pan-tilt-and-zoom capabilities should be located in the hedge immediately to the south of the nest tree. It will be important for both cameras to be accessible remotely, but with public live streaming from the nest camera only. [Edit – application sent to NRW on 21st December 2023.]

5.4. Ospreys and disturbance

5.4.1. Sensitivity of Ospreys to disturbance

Research has shown that human disturbance through a range of different sources, can have a negative impact on the breeding success of Ospreys. Predictable disturbance that is concurrent with nesting initiation, is usually better tolerated than sporadic disturbance or new sources of disturbance that occur during incubation and the early nestling stage, but it varies on a case-by-case basis (Levenson 1979, Poole 1989). Disturbance that causes the adult birds to leave the nest frequently or for extended periods during incubation or when there are small dependent young is particularly serious and can lead to reduced brood size, or complete failure, either through chilling or predation (Levenson and Koplin 1984, Monti et al. 2018). Under normal circumstances one of the adult Ospreys will remain on the nest at all times, particularly during incubation and while young are small. The female undertakes the majority of incubation, with the male taking over for short stints, usually to allow her to feed. This means the eggs are only uncovered for a few seconds while the birds change-over. Once young hatch the female remains on the nest at all times to brood and protect them (Dennis 2008, Mackrill et al. 2013). Leaving the nest unattended during these stages can leave eggs or young vulnerable to predation by opportunistic corvids, as observed at another Welsh Osprey site, Llyn Brenig, in 2020. Thus, periods where eggs or small dependent young are left for even a short period (i.e. as little as one minute) can provide clear evidence of disturbance during these critical periods of the breeding season. A bird leaving the nest under these circumstances will usually give an alarm call at the same time, which becomes more vociferous as the level of disturbance increases. Thus, the alarm call gives a useful indication as to whether the adult Osprey has left the nest for a short exercise flight (usually a few seconds) or due to disturbance. Clearly the longer the adult Ospreys are kept off the nest, the more serious the disturbance incident.

Ospreys tend to be more prone to being disturbed by people on foot, and Ruddock and Whitfield (2007) asked selected experts to record the distance at which Ospreys typically showed a ‘static’ (e.g. alarm calling) and an ‘active’ (e.g. taking flight) behavioural response to a single pedestrian observer walking in full view towards an active nest. They received a wide range of opinions, but mean values were 329m for ‘static’ and 225m for ‘active’ disturbance during incubation, and 325m for ‘static’ and 221m for ‘active’ during chick rearing. Fieldwork has also shown that adult birds become more sensitive to disturbance when young are close to fledging.

The type of disturbance can also be a factor. While Ospreys are easily disturbed by people on foot, they can become habituated to some agricultural activities if operatives remain inside vehicles. For example, 80% of Osprey breeding attempts in the Rutland Water area since 2001 have been in nests on or adjacent to arable fields. Ospreys usually accept the presence of tractors or combine harvesters near the nest, but easily flush upon sight of a person. Section 4(2)(c) of the WCA states the following: "Notwithstanding anything in the provisions of section 1 or any order made under section 3, a person shall not be guilty of an offence by reason of any act made unlawful by those provisions if he shows that the act was the incidental result of a lawful operation and could not reasonably have been avoided." This clause means that essential agricultural operations are permitted near Osprey nests, but there is still a legal responsibility to act with due care given the protected status of the species. It is particularly important to consider that there is individual variation in the tolerance of Ospreys to disturbance. Younger birds raising chicks for the first time may be more prone to disturbance than older, more experienced individuals in a well-established territory (Dennis 2008). As such agricultural work close to Osprey nests should only take place after consultation with a relevant expert. This approach is undertaken successfully in the Rutland Water area.

5.4.2. Management zones around the nest

In view of the protected status of the Osprey and the sensitivity of breeding pairs to disturbance, it is recommended that land-use management zones are implemented while the birds are present (mid-March to mid-September). These zones, shown in Figure 13, and outlined below, are based on the published literature and evidence from other Osprey nests in the UK.

It is important to recognise that if an activity was found to be causing disturbance to the Ospreys, it would have to stop or be modified immediately. As such a precautionary approach is advised.

Figure 13. Zones around nest. Red = exclusion zone, white = restriction zone, blue = outer zone, yellow = no fishing zones.

Exclusion zone - 0-350m from nest

Disturbance can be caused by a range of sources, but, as described above, is most likely to be caused by people on foot. The work of Ruddock and Whitfield (2007) shows that this is particularly the case within 330m of the nest. It is recommended, therefore, that a 350m exclusion zone (to allow for some contingency) should be established around the nest, to which there is no access on foot (Figure 13). This zone extends to the riverbank in two locations, and, as such, no fishing should be undertaken along the section of the river indicated on Figure 13 because accessing these areas would necessitate entering the exclusion zone. Signage should be installed in the appropriate locations to identify these no fishing zones. Fishing can continue as normal elsewhere, but it is essential that anglers do not encroach into the 350m exclusion zone at any point in order to access these other areas. Likewise, any form of shooting should not take place within the 350m zone while the Ospreys are present.

The field in which the nest tree is located, as well as four others situated within the 350m exclusion zone, are currently cultivated. Ospreys can become habituated to arable farming activity if it is undertaken sensitively, and, as such, there is scope for essential agricultural activities to continue, as described above. It will be important, however, to avoid undertaking work in the vicinity of the nest during the most sensitive periods of the breeding season, including the incubation period, when small chicks are present in the nest, and at fledging time. As such, close liaison with those monitoring the

Osprey activity will be required when agricultural work is planned in the exclusion zone. It will also be very important that any person undertaking essential agricultural activity within the 350m exclusion zone remains in a vehicle whenever possible, because this greatly reduces the risk of disturbance to the Ospreys. This is particularly important when any work is being undertaken in the field in which the nest is located. In addition, agricultural machinery or vehicles should not be left in the exclusion zone while not in use, and bird scarers should not be used while Ospreys are present.

It is recommended that an Osprey Steering Group is set-up to oversee the implementation of this plan (Section 5.8). It would be advisable for any planned agricultural activities in the exclusion zone to be agreed in advance with this group.

In view of the fact that the field in which the nest is located, and others adjacent to it, regularly flood, making arable farming difficult, (Figure 8) consideration could be given to wetland habitat creation in this area. This would benefit a range of other species, including Curlew *Numenius arquata*, a red-listed species of conservation concern, and would greatly enhance the biodiversity value of Gilestone Farm, which is already known to be high. As such, there would be value in producing a whole-site conservation plan. In the short-term, it is recommended that a 50 metre uncultivated grass buffer zone is established around the nest for the 2024 season to reduce the risk of disturbance to the Ospreys by essential farming activities.

The 350m exclusion zone also extends to fields outside the Gilestone Farm landholding. These fields are grazed by sheep and cattle by neighbouring farmers. Like the arable farming, grazing can continue in these fields, but it will be important for those monitoring the Osprey nest to liaise closely with these farmers, particularly during sensitive periods of the breeding season. Livestock checks should be carried out from a vehicle, and any essential work should be undertaken as far as possible from the Osprey nest.

No other activities should take place within the 350m exclusion zone while the Ospreys are present.

Restricted zone - 350-750 metres from nest

Although disturbance is most likely to occur in the 350m exclusion zone, other activities may cause disturbance to Ospreys at significantly greater distances. This is particularly the case for any unusual or conspicuous activities that take place within line of sight of the nest. It is therefore essential that a 350-750 metre restricted zone is also established. A zone of this nature has been successfully

implemented around the Osprey nest at Llyn Brenig to prevent higher-risk activities from disturbing the nesting Ospreys (Mackrill 2022).

The risk of disturbance means that no unusual or conspicuous activities including, but not limited to, events and gatherings of any sort should be held within the restricted zone (i.e. within 750 metres of the nest).

No shooting of any sort should take place in the restricted zone. Likewise, no fireworks should be used.

In recent years the use of drones has become a common recreational activity, and picturesque locations such as the Usk valley are particularly popular. The presence of Ospreys will add further interest. Drones have the potential to cause significant disturbance at Osprey nests and, as such, should not be used within 750 metres of the nest. No fly signage should be installed at relevant locations and an airspace restriction should be applied for via the UK Civil Aviation Authority (CAA) (https://www.caa.co.uk/drones/airspace-and-restrictions/airspace-restrictions-for-remotely-piloted-aircraft-and-drones/).

Normal agricultural activities, such as drilling, spraying and harvesting arable crops, or tending to livestock, can be carried out in the restricted zone, however it is recommended that the use of bird scarers is avoided when Ospreys are present.

The A40 highway passes through the north-east of the zone, but is in excess of 500 metres from the nest at its closest point and well-shielded by trees and hedgerows. Similarly, the B4558 passes through the south-west of the zone, but is also in excess of 500 metres from the nest at the closest point and lined by trees and hedgerows. As such, any required roadworks could be undertaken as normal along either of these roads.

The canal tow path walking route runs through the south-west of the zone, but like the B4558 is sufficiently distant (>500m) and screened by trees and hedgerows for walkers not to create any disturbance. Similarly, there is no risk of disturbance from canal boats. There are no other recorded public rights of way within the restricted zone.

Fishing is acceptable in this zone, assuming that any anglers accessing the river do so without encroaching into the 350 metre exclusion zone, as detailed above.

Outer zone - 750-1000m

Usual day-to-day activities can proceed as normal when they are >750 metres from the nest, but it is recommended that any unusual or larger scale events in an outer zone, 750-1000 metres from the nest, should be judged on a case-by-case basis in consultation with relevant experts and the Osprey Steering Group (Section 5.8). Monitoring may be required to ensure that any such events do not disturb the nesting Ospreys.

The three zones are summarised in Table 1 below.

Table 1. Recommended land-use zones around Gilestone Farm Osprey nest

For the period mid-March to mid-September		
Disturbance can reasonably be considered as: • Any activity that causes the Ospreys to repeatedly make alarm calls; • Any activity that causes the Ospreys to leave the nest or nearby perches, particularly if they leave eggs or small dependent young unattended.		
Zone	**Rule**	**Exceptions**
Exclusion zone 0-350m	• No access on foot or in vehicles. • No shooting or fishing. • No flying of drones. • No fireworks.	• Essential agricultural activity. Every effort should be made to remain in vehicles at all times. • Planned management/monitoring of Osprey nest, carried out under licence.
Restricted zone 350-750m	• No unusual or conspicuous activities including, but not limited to, events and gatherings. • No shooting. • No flying of drones. • No fireworks.	• Normal agricultural operations. • Fishing where permission has been granted. • Use of canal and canal tow path. • Construction works on the highway.
Outer zone 750-1,000m	• Most activities can proceed as usual, but any larger scale events or activities should be judged on a case-by-case basis. • Permitted activities may need to be monitored.	• Normal day-to-day activities can proceed.

If monitoring showed any activity, in any of the zones, was causing disturbance it would need to stop or be modified as continuing would be a breach of the Wildlife and Countryside Act.

5.4.3. Additional sources of disturbance

There are two other potential sources of aerial disturbance, in addition to drones. Military aircraft regularly fly low along the Usk Valley during summer, which has the potential to cause significant disturbance. It would therefore be advisable to request a Notice to Aviation (NOTAM) regarding the presence of the Osprey nest. In addition, aerial inspections of the power distribution network by very low flying helicopters occasionally takes place at Gilestone Farm, which could also create significant disturbance. As such it would be advisable to request that the utility company do not undertake routine inspections during the period when Ospreys are present.

5.5. Public viewing of the Osprey nest

As described above the presence of Ospreys at Gilestone Farm is now public knowledge and, given the significant interest in the species, it would be advisable to provide the opportunity for visitors to view the nest from a safe distance where there is no risk of disturbance to the birds. This would help prevent any unauthorised access onto the land by people wishing to see the Ospreys, and it would also provide a valuable eco-tourism opportunity.

Dickie et al. (2006) estimated that 290,000 people visit Osprey watching sites in the UK each year, contributing approximately £3.5 million to local economies in the process. It seems likely that these figures are now considerably higher given the growing number of Osprey-watching sites around the country. A study by Natural Resources Wales showed that in 2011, when 40,000 people visited the Cors Dyfi nest in Mid Wales, £180,000 of visitor spend was directly attributable to visits to the site. Furthermore, the presence of Ospreys was a key factor in decisions to visit the area and the overall economic impact of these trips was estimated to be £2.15 million (Munday et al. 2015). This shows that while Ospreys are now becoming more common and widespread, the bird's popularity is showing no signs of waning and this has significant benefits for the communities in areas where they breed.

In the initial instance a temporary viewing facility could be established near the self-catering lodges at Gilestone Farm. The location, shown in Figure 14, is approximately 880 metres from the nest, but the elevated location gives outstanding views along the Usk valley, looking north-west towards the nest (Figure 15). This orientation would allow for good viewing conditions all day, and high-powered optics would provide views of the nest that are similar to some other Osprey viewing sites in the UK. The popular Glaslyn Osprey site near Porthmadog in North Wales is situated significantly further from a nest which has been in use since 2004, although a second pair now also breed in closer proximity.

High-definition CCTV images are shown in a small visitor centre which is run by Bywyd Gwyllt Glaslyn Wildlife (BGGW), predominantly by volunteers. BGGW was initially set up as a Community Interest Company and gained charitable status in 2017.

Most Osprey viewing sites are open on a daily basis while Ospreys are present, but a more realistic option for Gilestone Farm, at least in 2024, would be to follow a model established by conservation charity Birds of Poole Harbour (BOPH) in Dorset. BOPH organised guided public watches of a nest on private land for small groups of ten, up to three times per day, during the peak of the breeding season (https://www.birdsofpooleharbourbookings.co.uk/ospreys). Viewing was from a specially built platform and had to be booked in advance at a price of £15 per person for a two-hour session. All sessions were fully booked, with a total of 750 attending the watches over the course of the summer (P Morton *pers. comm.* 2023).

The proposed CCTV system would enable live images from the nest to be shown close to the viewpoint, using a large screen television that could be sited in one of the existing farm buildings nearby. Visitors could be given a short introductory talk at this location, before proceeding to the viewpoint. It would be advisable to provide a temporary shelter, such as a gazebo, so that those viewing the nest are protected from any inclement weather. A more permanent structure could follow in due course if public watches prove successful. Hard standing nearby would provide some limited all-weather parking (Figure 16).

Figure 14. Location of proposed public viewpoint site at Gilestone Farm.

Specialist guides would be required to lead public watches, and as such, it may be helpful to establish a voluntary group to support the delivery of this work (section 5.7). Alternatively, a partnership could be established with a local conservation or tourism organisation. As an example, North Wales Wildlife Trust run an Osprey viewpoint at Llyn Brenig, which is owned by Dŵr Cymru Welsh Water. A Friends of Usk Ospreys group is currently being set-up and this may provide a valuable source of highly-motivated volunteers. This would be an excellent way to engage the local community in activities at the farm and would replicate the situation at Glaslyn in North Wales, where the Osprey viewpoint is a community-led initiative run by Bywyd Gwyllt Glaslyn Wildlife, as described above.

Figure 15. View towards the nest from the proposed viewpoint location.

Figure 16. The proposed viewpoint location.

An added, longer-term possibility, is that a large pond, close to the proposed viewpoint, could be stocked with fish (Figure 17). Ospreys readily fish in water bodies of this size, and in some locations, special hides have been constructed to give very close views of hunting Ospreys. In Rutland a photography hide at Horn Mill Trout Farm has proved hugely successful and has become a key element of the trout farm's business model, with photographers paying £87 for a dawn or evening session in the hide which can accommodate up to six people (https://www.rivergwashtroutfarm.co.uk/horn-mill-osprey-hide/).

Figure 17. The large pond close to the proposed Osprey viewpoint at Gilestone Farm.

5.6. Monitoring of the Osprey nest

5.6.1. Data recording

A key element of the work at Gilestone Farm will be to closely monitor the Ospreys when they return from migration, particularly as their presence is now in the public domain. This will be greatly aided by the installation of the CCTV system described in section 5.3.

As with a public viewpoint, monitoring would be best achieved with assistance from a voluntary group (section 5.7). Nest watches could be undertaken at the viewpoint, or remotely using the live stream.

The most important periods for monitoring are during the incubation and chick-rearing stages. The threat of egg collecting, a major issue for Ospreys and other rare birds until custodial sentences were introduced in 2000, is now significantly reduced, but if capacity allows 24-hour monitoring of the nest could be undertaken remotely during the incubation period. The CCTV system will include continuous 24-hour recording of footage.

It is important to establish a clear protocol for reporting and responding to any any incidents that might occur in the vicinity of the nest, during the day or at night, as per the intrusion detection camera protocol. This should be agreed in advance with the Dyfed-Powys police.

It would be helpful to devise standardised data collection forms to facilitate consistent recording of Osprey activity. Key ecological data to collect includes:

- Time spent incubating by female and male;
- Instances of eggs being left uncovered, or young being unattended;
- Duration of foraging trips;
- Fish species brought to the nest;
- Time spent feeding chicks;
- Intrusions by other Ospreys.

It is particularly important to record any specific time periods when the Ospreys are away from the nest, and, where possible, to identify the cause. Any instances of disturbance observed on camera or at the site should be recorded. Disturbance to breeding Ospreys is an offence at any point during the breeding season.

Any disturbance incidents should be carefully recorded, including the total time the adult Ospreys remained off the nest. Efforts should also be made to identify the source of disturbance, whether natural (e.g. an intruding Osprey) or anthropogenic (e.g. a person walking near the nest). Audio from the nest should be used to ascertain whether the female or male (if appropriate) gave alarm calls prior to leaving the nest, or when in flight nearby. This will help to determine whether the bird left the nest in response to disturbance (the source of which may not be visible).

Additional monitoring may be required for certain activities, as described in section 4.4.2. It is recommended that this should be organised on a case-by-case basis in consultation with relevant experts and the Osprey Steering Group.

5.6.2. Ringing of chicks

Ringing provides a valuable means to monitor the expanding population of Ospreys in Wales. Individual birds are fitted with a metal British Trust for Ornithology (BTO) ring on the left leg, and a colour ring, with an alpha-numeric inscription, on the right leg. This enables individual birds to be identified in the field and on nest cameras, and greatly facilitates post-release monitoring. It is important, therefore, that any young are ringed when they are approximately 5-6 weeks of age by an appropriately licensed ringer. Standard biometric measurements, including weight and wing length, should be recorded at the same time. The ringing process should be undertaken in good weather, and in a time-sensitive manner. It is recommended that ringing of the chicks is included on the Schedule 1 licence application that also covers remedial work on the nest and installation of CCTV cameras, as described in section 5.2.

5.6.3. Evaluation of annual monitoring and publication of data

The results of monitoring outlined in section 5.6.1. will help to determine the effectiveness of the zoning described in section 4.4.2 as well as the other conservation measures outlined in this report. It is recommended that these findings should be published in an annual monitoring report.

5.7. Establishment of voluntary group

Volunteers play a key role in monitoring Osprey activity and engaging with the public at different sites in Wales and across the UK. As described earlier it is recommended that a volunteer group is established to:

- Assist with monitoring of the nest in order to record Osprey behavioural data and to enhance security;
- Support the development of Osprey eco-tourism and to lead guided Osprey watches;
- Have input into the Osprey Steering Group (Section 5.8).

5.8. Establishment of an Osprey Steering Group

It is recommended that an Osprey Steering Group is established to oversee the implementation of this plan and to review its effectiveness. As a minimum it would be advisable for this group to include representatives from Welsh Government and tenants, along with representatives of any Osprey voluntary group that is set up (as per section 5.7), and any other organisation engaged in monitoring and/or public engagement work at the site, as well as Natural Resources Wales. An Osprey expert may also be valuable, particularly in year one. It is recommended that this group should meet on a monthly basis and to undertake a formal annual review of all work undertaken as part of the plan, including the effectiveness of zoning and other conservation measures.

6. Conclusion and summary of recommendations

The key recommendations of this plan are as follows:

- Undertaken remedial work on the nest to secure it in its present location, or to move it to a different part of the crown in the same tree. This work requires a licence from NRW, which should be applied for before Christmas 2023 [Edit – licence applied for on 21/12/23];
- Install a CCTV system with a camera on the nest tree looking directly into the nest and a second camera nearby to provide a wide-angle view of the nest tree and surrounding area. There should be remote access to both cameras to facilitate monitoring;
- Live stream images from the main nest camera for public viewing and have 24-hour recording of all footage;
- Continue to use intrusion detection cameras as additional security around the nest tree;
- Implement the zoning system outlined in this plan;
- Closely monitor Osprey breeding activity, using a team of volunteers or a relevant organisation. Monitoring could be carried out remotely via the live stream or from the watchpoint. This could include 24-hour monitoring of the nest during the incubation period, if capacity allows;
- Keep a record of any instances of disturbance at the nest;
- Establish an emergency protocol in case of any incidents at the nest, and agree this with the Dyfed-Powys police;
- Ring any chicks in the nest, when they are aged approximately 5-6 weeks;
- Trial an Osprey watchpoint in 2024 near the lodges at Gilestone Farm, supported by volunteers or a relevant organisation. This would include high-powered optics to view the nest and a live stream from the Osprey nest camera, shown in the one of nearby farm buildings;

- Establish a volunteer group to assist with Osprey monitoring and public viewings of the nest;
- Establish an Osprey Steering Group to oversee the implementation of this plan and to monitor its effectiveness in a formal annual review.
- Publish annual summary of the results of monitoring at the nest, including a review of the effectiveness of exclusion zones.

It is hoped that the recommendations laid out in this plan will facilitate the successful breeding of Ospreys at Gilestone Farm, which would be a significant development in terms of the recovery of the species in Wales. Furthermore, it will help to demonstrate Welsh Government's commitment to the Environment (Wales) Act, which states, in section 6(1), that a public authority must 'seek to maintain and enhance biodiversity'.

It is clear that the presence of Ospreys, one of Wales' most iconic and much-loved birds, provides an exciting eco-tourism opportunity. Evidence from other sites in Wales indicates that this has the potential to engage large numbers of people with nature and to make a valuable contribution to the rural economy.

Ongoing monitoring will be vital to the critical evaluation of the proposed exclusion zones and other conservation measures detailed in this plan. It will be important for the Osprey Steering Group to review progress on a monthly basis and to conduct a formal annual review. Publishing an annual monitoring report will provide an important summary of these findings.

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