Osprey Conservation Plan – Llyn Brenig

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Change Log

Issue Number & Date	Changed by	Details of Change
Version 1.0, March 2022		New Document
Version 2.0	Nick Kite	RSPB Logo removed, and references to current involvement. Updated section 3 to include 2022 outcome. Updated 7.6 with respect to forestry felling progress. Updated 7.8.3 with licence details and plan of action for dealing with other species attempting to use the nest. Updated 4 to reflect change from partnership to collaborative project. Updated 7.4 – changed "partners" to "stakeholders" Updated 7.7.1 to indicate ongoing project to facilitate video output at NWWT lookout. Updated 7.8.1 with information about the anti climb sleeve installed on the pole. Updated 7.10 to reflect collaborative approach that has superseded the partnership
Version 3.0	Nick Kite	Updated 7.6 - changes agreed by the Board with regard to forestry and felling.
	Nick Kite	Updated 3.0 – breeding success in 2023
		Updated 7.1 – changed to past tense.
		Updated 7.8.5 and 7.8.6 to record a licence change application was made.
Version 4.0	Nick Kite	Updated 7.8.4 and 7.8.5 to record NRW refusal of licence amendments required to deliver supplementary feeding or emergency approach / handling of birds.

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Executive Summary

The Osprey is one of the rarest and most spectacular breeding birds in Wales, with up to six pairs breeding annually since 2004. As such, every breeding site is of considerable national importance.

Ospreys have nested at Llyn Brenig, a reservoir owned by Dŵr Cymru Welsh Water (DCWW), since 2018. DCWW work closely with the North Wales Wildlife Trust (NWWT) to protect the nesting Ospreys and to enable visitors to enjoy seeing them. Live images from the nest are also streamed to a large online audience.

Llyn Brenig is also a popular recreational site and attracts approximately 150,000 visitors each year who participate in a variety of activities, including fishing, cycling and watersports.

This plan sets out the conservation measures required to protect the breeding Ospreys at the site, particularly in relation to other activities that take place. Ospreys are protected as a Schedule 1 species under the Wildlife and Countryside Act 1981, making it an offence to disturb them at a nest, whether intentionally or otherwise. Recommendations include the establishment of specific exclusion zones to prevent disturbance.

The plan outlines the associated monitoring methodology required to record the breeding behaviour of the Ospreys and to evaluate the effectiveness of the exclusion zones and other conservation measures. It also considers a range of emergency planning procedures that should be enacted in response to a range of scenarios that may occur at the nest.

1. Aim and scope of the plan

Ospreys *Pandion haliaetus* have nested at Llyn Brenig since 2018, rearing a total of three chicks in the subsequent four years. As one of a small number of established nests sites in Wales, the site is of national significance and generates much public interest.

DCWW also have a statutory obligation to facilitate visitor access at the site, with targets for visitor numbers set by the Water Services Regulatory Authority (Ofwat). Failure to meet these targets would result in financial penalties. Approximately 150,000 people visit each year, participating in a variety of activities including fishing, cycling and watersports.

The key aim of this plan is to set out the conservation measures required to protect the breeding Ospreys at the site, particularly in relation to other activities that take place. Ospreys are protected as a Schedule 1 species under the Wildlife and Countryside Act 1981, making it an offence to disturb them at a nest, whether intentionally or otherwise.

The plan also outlines the associated monitoring methodology required to record the breeding behaviour of the Ospreys and to evaluate the effectiveness of the conservation measures outlined in this plan. In addition, it considers a range of emergency planning procedures that should be enacted in response to a number of scenarios that may occur at the nest.

2. The Osprey in Wales

The Osprey is exclusively piscivorous and readily breeds close to freshwater and saltwater habitats (Poole 1989, Dennis 2008). It recolonised Wales in 2004 and since then a maximum of six pairs have attempted to breed in a single year, with a total of 114 chicks fledging by the end of 2021. Young Osprey usually breed for or the first time at 3-5 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 females from the Rutland Water population in central England have reared chicks in Wales since 2011. These dispersing birds included Blue 24 who raised three chicks at Llyn Brenig with a Scottish male, HR7, between 2018 and 2020 (see section 3).

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). This is exemplified by the fact that a new pair of Ospreys took over the Llyn Brenig nest in 2021 when the previous incumbents failed to return from migration (Table 1).

3. History of Ospreys at Llyn Brenig

The Brenig Osprey project began in 2013 when DCWW built three artificial nests at various locations around the site, in an effort to attract breeding Ospreys. Subsequently a further two artificial nests were constructed (Figure 1).

By 2015, the first signs of success were beginning to emerge. A young male Osprey, CU2, was seen regularly – before, sadly, being electrocuted on electricity pylons the same year. Occasional sightings continued through 2016 but, in 2017, there was a breakthrough. A pair of birds stayed in the area for the whole of the nesting season, showing a strong preference for a platform that had been erected in the water. The male, HR7, fledged from a nest in central Scotland in 2014, while the female, Blue 24, originated from a nest near Rutland Water in central England in 2010. In 2018, it was decided to focus all preparation effort on the nest the Osprey had shown keen interest in during 2017. DCWW, under the guidance of the Area Manager, arranged for cameras to be mounted and extra perches to be added, both on the nest and in nearby woodland. The Ospreys subsequently reared a single chick. The birds continued to return to the site for the next two years, rearing a single chick on each occasion.

HR7 and Blue 24 failed to return in 2021, but they were replaced by two new birds, both Scottish in origin, male LJ2 and female LM6. However, the nest pole was illegally felled with a chainsaw in spring 2021, at the beginning of incubation. A replacement nest was subsequently occupied by Greylag Geese *Anser anser*, meaning the breeding attempt failed.

The adult birds remained in the vicinity of the area for the rest of the summer. The pair returned to the nest in spring 2022, successfully fledging 2 chicks from the nest, and again in 2023 .

Table 1. Osprey breeding attempts at Llyn Brenig

Year	ID of male	ID of female	No. of young	ID of chicks	Notes
2018	HR7	24	1	Z9 (Luned) f.	
2019	HR7	24	1	KA5 (Roli) m.	
2020	HR7	24	1	KC5 (Dwynwen) f.	KC5 found dead after fledging
2021	LJ2	LM6	0		Nest failed after illegal felling
2022	LJ2	LM6	2	X6 (Olwen) f. KA9 (Gelert) m.	Early ringing means there is lower confidence than normal in the determined gender of the chicks.
2023	LJ2	LM6	2	7B5 (Dilys) f. 7B6 (Mari) f.	Despite ringing at the correct age, there was still some uncertainty regarding gender. However, at fledging stage, they did have an appearance that corresponds more to female characteristics.

4. Current management of the site

Llyn Brenig, including the Osprey nest site and adjacent land, is owned and managed by DCWW. NWWT own and manage Gors Maen Llwyd, a 274-hectare moorland site bordering Llyn Brenig to the north of the nest.

The Brenig Osprey Project is a Welsh Water initiative which aims to further the re-establishment of Ospreys in North Wales, principally (but not exclusively) through a focus of attention on the primary nest at Llyn Brenig. The responsibilities of the stakeholders are covered by a separate Collaborative Agreement, currently renewed annually and ultimately led by DCWW. In 2023-24, these can be briefly summarised as:

- As landowners, **DCWW** are responsible for the conservation of the Llyn Brenig Ospreys and any decisions/actions taken to ensure the nest's protection from damage or disturbance.

- **NWWT** may offer advice on the conservation of the Llyn Brenig Ospreys, but their main focus to date has been public engagement. Their role in managing volunteering/protection/monitoring is mentioned elsewhere in this document.

NWWT maintain a regular staff and volunteer presence at Llyn Brenig.

5. Nest site location

The same nest site has been used each year since Ospreys first bred at Llyn Brenig in 2018 (Figure 1). This is located on a pole in shallow water on the western shoreline of the reservoir, adjacent to an area of commercial forestry. A 150-metre exclusion zone, enforced with buoys and a floating barrier, is in operation in the water around the nest to ensure fishing boats and other water traffic do not encroach any closer. A public track passes within 270 metres to the west of the nest, but topography and the forestry plantation mean that the nest is not visible from the track. A security fence prevents access within 150 metres and a stock fence discourages casual access 250 metres from the nest. A viewing hide is located within the forestry block, approximately 150 metres from the nest.

A permissive path runs just above the shore of Gors Maen Llwyd, some 400 metres north of the nest. The shoreline, located 300 metres from the nest, is also sometimes accessed by birdwatchers.

Figure 1. Female Osprey Blue 24 adding a stick to the Brenig nest as a juvenile looks on.

6. Other artificial nests

Four other artificial Osprey nests are located around Llyn Brenig, as shown in Figure 2 (red dots). These additional sites are currently covered to prevent occupation by other Ospreys, which may otherwise lead to interference at the main nest, and to ensure that the Osprey use the nest where they can be best protected, especially in view of events that occurred in 2021 when the pole was cut down with a chainsaw. Three additional nests have been sited near surrounding water bodies by another Osprey group.

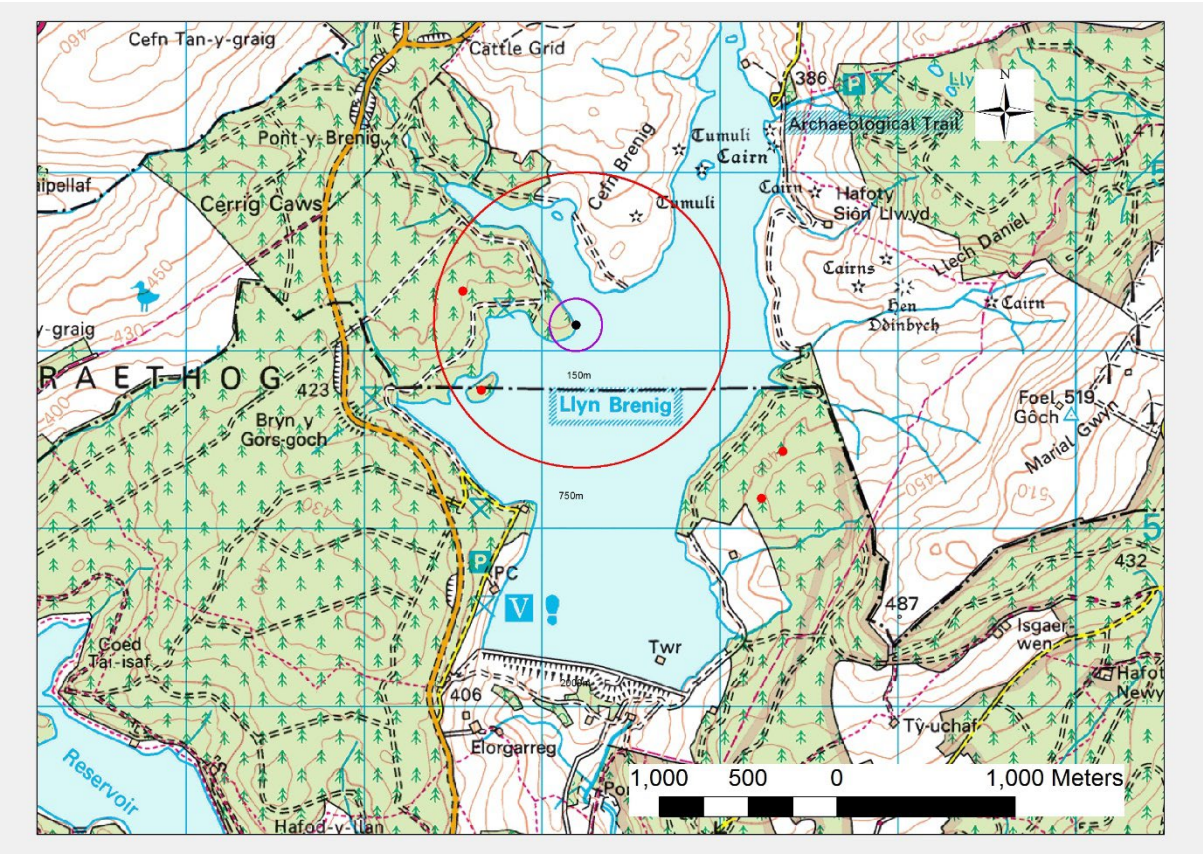

Figure 2. Map showing the location of the Osprey nest at Llyn Brenig (black dot) and other artificial nests at the site (red dots). The map also shows the exclusion zone currently in operation (purple circle) and proposed 750m exclusion zone (red circle – see Section 7.3).

7. Future management of Ospreys at Llyn Brenig

7.1. Replacement of felled nest and implementation of additional security

A new nest pole and artificial nest were erected in the same location as the felled nest during winter 2021/22. Additional security measures were been implemented to protect against further vandalism, including support from security services, the installation of two intrusion detection cameras (Figure 3) and the use of Smartwater. A new camera system on the nest will also provide enhanced security.

Figure 3. One of two intrusion detection cameras installed near the nest.

7.2. Exclusion zones around nest

Ospreys are listed as a Schedule 1 species under the Wildlife and Countryside Act 1981, and as such it is an offence to disturb them, intentionally or otherwise, at an active nest. Disturbance during key points in the breeding season, particularly when there are eggs or small vulnerable young in the nest, can have serious implications, particularly if adult birds are kept off the nest for an extended period of time. 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 Llyn Brenig in 2020. Thus, periods where eggs or small dependent young are

left unattended 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 are particularly sensitive to disturbance by people on foot and, although they can become habituated to certain activities, best practice dictates that carefully considered exclusion zones should be implemented and enforced to reduce the risk of disturbance that may lead to a reduction in brood size or, in some cases, complete nest failure.

7.3. Water-based activities

In some localities Ospreys can become habituated to the presence of boats and other water-based activities, but this varies according to the nature of the activities and traits of individual birds. A precautionary approach should therefore be taken to avoid disturbance issues.
A 150-metre exclusion zone has been marked out with buoys since 2018, and this became a solid floating platform in December 2020. This is at the limit of the disturbance distance the majority of Ospreys in the UK will tolerate, but should be effective in preventing disturbance by boat traffic. However, it is important to continually monitor the effectiveness of this exclusion zone, in case it requires extending to a larger area (see section 7.7.5).

By their nature, some watersports pose a significantly greater risk of disturbance to breeding Ospreys than other water-based activities. Stand-up paddleboards are particularly high-risk because a human silhouette is conspicuous. Given the clear disturbance risk, all forms of watersports, including stand-up paddle-boarding, should be permitted in strictly controlled zones only, at least 750 metres from the nest. This should be strictly monitored and enforced throughout to ensure its effectiveness.

Similarly, open-water swimming, which has increased in popularity in recent years, should be permitted in carefully controlled zones only. Like watersports, it should take place no closer than 750 metres from the nest.

The effectiveness of these exclusion zones should be reviewed annually by DCWW in conjunction with NWWT (see section 7.7.6).

7.4. Land-based activities

Land-based activities can also result in disturbance to breeding Ospreys and, as such, it is important to consider any activity that takes place close to the nest.

A perimeter track provides public access to the area immediately west of the Osprey nest at Llyn Brenig. At its closest point this track is 270 metres from the nest, which is unlikely to create disturbance to breeding Ospreys, who will become habituated to the presence of people on foot or bikes, especially as topography and the forestry block adjacent to the nest provide additional screening. However, the planned felling of the conifers (see section 7.6) will mean that the nest is more exposed for a period. It is important, therefore, that adequate fencing and signage is in place to ensure that it is not possible to approach the nest from the track. As a minimum this should include secure stock proof fencing, installed during winter 2021/22, to prevent casual access within 250 metres of the nest, with additional signage to make it clear that access beyond this fence is strictly prohibited. This fence will be in addition to an existing security fence which prevents access closer than 150 metres, as per the water-based barrier.

A viewing hide, situated within the forestry block, provides controlled access for photographers and other members of the public to gain a closer view of the nest, as detailed below. However, anyone using this hide (i.e. all those entering the 250m zone) should be accompanied by a member of staff or volunteer at all times.

Walkers on the path above the shore of the Gors Maen Llwyd, and small numbers of birdwatchers on the shore should be sufficiently distant from the nest to not cause disturbance, particularly given the backdrop of rising land. However, as with all sources of possible disturbance, this will be monitored as detailed in section 7.7.5.

No land-based activities, other than access to the viewing hide, should be permitted within 250 metres of the nest. Furthermore, any proposed activities between 250m and 750m from the nest should be considered on a case-by-case basis (including consultation with relevant experts) during the periods when Ospreys may be present at the nest, i.e. 1st March – 30th September. Decision-making should be clearly documented and evaluated, and communicated with all stakeholders in the Brenig Osprey Project.

7.5. Air-based activities

In recent years the use of drones has become a common recreational activity, and locations such as Llyn Brenig inevitably attract interest in this regard. Drones have the potential to cause significant disturbance at Osprey nests. A licence, issued by Welsh Water, is required to use drones at the site, but in view of the disturbance-risk to breeding Ospreys, it is recommended that no licence should be issued for use within 750 metres of the Osprey nest.

7.6. Forestry operations near nest

A 4.36-hectare conifer block occupies land immediately adjacent to the nest (Figure 2). This suffered considerable windthrow during the winter of 2021/22 and, as such, requires felling.

Following a site visit in December 2021, it was agreed that felling would be best undertaken in quarter blocks. The first Conservation Plan (Version 1) recommended that any felling should be phased over subsequent winters, when Ospreys are not present, and advised felling no more than two blocks in a single winter.

This phased felling has been adhered to (as of 4th August 2023), and is currently half way through, with two blocks remaining. They were scheduled for felling over the coming 2 winters.

However, significant safety issues have arisen as the remaining trees have become unstable along the new forest edge. The perimeter fence has been crushed on more than 3 occasions, compromising osprey security, as well as causing significant closure of the observation hide. That included an early finish for a monitoring day for safety reasons. This disrupted work specifically set up under this conservation plan, to understand their behaviour.

In light of the above, the Project Board have reviewed the response of the birds to the felling so far, and their general response to nearby activity via the monitoring protocol in place. The Board concluded that the remaining trees should be felled over the winter of 2023/24. Arrangements will be made to leave some standing wood and to row up the brash in a manner that aids screening of the nest from the North East. In addition, further screening may be added to the perimeter fence, where a direct view opens up to the nest.

Ospreys prefer an open aspect, and felling of trees adjacent to the nest has the potential to improve the site for the birds. It was recommended that some standing wood was left, as perches for the Ospreys, which has also been achieved.

Version 1 of the Conservation Plan also stressed the importance of adequate fencing and signage once the blocks closest to the perimeter track were felled, to ensure that people do not approach the nest. This fencing and signage requirement was delivered in early 2021, with additional fencing scrim added in early 2023 to screen movement.

Version 1 suggested that replanting should be undertaken using a mix of native species, rather than commercial conifers, to provide screening for the Osprey nest and enhance biodiversity value. As of March 2023, all areas that have so far been felled have been replanted with native species, including oak and birch.

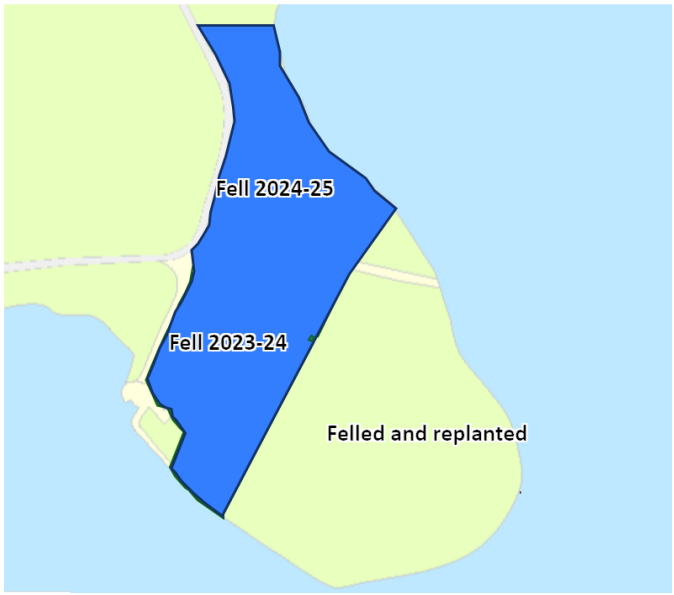

Figure 4. Map showing proposed felling of conifer block.

7.7. Monitoring of breeding activity

Ongoing monitoring of the breeding Ospreys at Llyn Brenig is vital, particularly in view of events in 2021, when the nest was illegally felled with a chainsaw. It will also help to advise ongoing conservation measures, and the effectiveness of different exclusion zones.

7.7.1. Use of nest camera

A new camera system was installed at the nest during winter 2021/22 to facilitate enhanced, and more reliable remote viewing of the nest. The camera images will be streamed online and shown in the Llyn Brenig Visitor Centre, with a project underway to also enable this at the

NWWT watchpoint. The installation of the new camera system will provide an additional deterrent to further vandalism of the nest, and images will be recorded using a network video recorder.

The camera images and sound will also be used in ongoing monitoring of the nest (see below).

7.7.2. Volunteering

Volunteers are integral to the protection of Ospreys at Llyn Brenig, as well as public engagement activities. In view of the vandalism that occurred at the nest in 2021, it is recommended that efforts should be made to undertake 24-hour protection of the nest during the incubation period in the first instance and, if capacity allows, to continue this into the nestling stage, particularly when there are small dependent young in the nest. This would be best undertaken by a combination of staff and volunteers. These volunteers should be managed by NWWT, to be reviewed annually.

A protocol for dealing with any suspicious activity that occurs at night has been agreed with North Wales Police. Any volunteers staff and volunteers monitoring the nest will be fully briefed on this protocol and trained accordingly.

7.7.3. Use of hide

The existing viewing hide provides excellent views of the breeding Ospreys, but has the potential to cause disturbance if used inappropriately given its close proximity to the nest.

During the day the hide could be reserved by individuals or small groups, as in previous years. It is important that any members of the public using the hide are accompanied by a member of staff or volunteer at all times, to ensure that the breeding Ospreys are not disturbed.

7.7.4. Osprey Lookout

A viewpoint manned by NWWT staff and volunteers is situated 1km south of the nest, adjacent to the perimeter track. This provides distant views of the nest, which will be enhanced by live camera images relayed from the nest to a large screen. The key role of the site is public engagement, but it will also provide an ideal base to record Osprey behaviour, monitor effectiveness of exclusion zones, and to record any instances of disturbance to the breeding Ospreys, as detailed below.

7.7.5. Data collection

A key role of staff and volunteers at the NWWT Osprey Lookout, supplemented by those at the viewing hide, will be to collect data on the breeding behaviour of the Ospreys.

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

Figure 5. LM6 feeding on a freshly-caught Rainbow Trout

Any disturbance events observed from the Osprey Lookout should be recorded. Particular attention should be paid to instances of disturbance during incubation or when there are small dependent young in the nest, which can have the most significant effects on the outcome of the breeding attempt. During this stage it is rare for breeding Ospreys to leave the nest unattended. Any occasions when this occurs should be carefully recorded, including the total time the adults were 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 along the shoreline). 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). Staff and volunteers at the Osprey Lookout will need to maintain contact with anyone present in the hide and coordinate efforts to identify the source of any disturbance.

In addition to recording specific disturbance events, it will also be important to undertake 'control' observations to record the behaviour of the Ospreys at other times. A simple recording system should be used to record the behaviour of the Ospreys every 5 minutes during randomly allocated 60-minute periods throughout the breeding season so that the reaction of Ospreys to specific triggers, such as a boat passing the nest, can be categorised whilst also capturing times when nothing passes or there is no activity. An example is shown in Table 2 below. Particular attention should be paid to any water-based activities taking place at the time.

Table 2. Example Nest activity recording sheet.

Time	Activity	Osprey response score	Comments (including time off nest if relevant)
11:00	Boat passes 150m from nest	1	
11:05	Person walking along shoreline near nest	4	Female off nest for 5 mins
11:10	No activity	1	
11:15	Magpie lands on perch near nest	2	
11:20	No activity	3	Female makes short exercise flight (30 seconds) before returning, male standing on side of nest throughout.
11:25	No activity visible	2	Female alarm calling
11:30	Boat approx. 250m from nest	1	

Osprey response key:

1 = No reaction

2 = Alarm call, but remained on nest

3 = Left nest, no alarm call

4 = Left nest, alarm call

In addition to data collected at the Osprey Lookout, staff and volunteers manning the viewing hide should also record any instances of disturbance as detailed above, and maintain contact with staff and volunteers at the Osprey Lookout.

7.7.6. Ringing of chicks

Ringing provides a valuable means by which 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 as time-sensitive manner as possible.

7.7.7. Evaluation of annual monitoring and publication of data

All monitoring undertaken as per section 7.7.5. and 7.7.6. should be analysed and the results published in an annual monitoring report. This will enable the results of the monitoring to be reviewed by the project team in the context of the outcome of breeding activity at the nest. It will also help to inform future management of the site, including the effectiveness of exclusion zones etc.

7.8. Emergency planning

Experiences at Llyn Brenig and other Ospreys sites, particularly those with public watchpoints and live cameras, demonstrates that a range of unexpected events may occur over the course of the breeding season. These can range from scenarios as extreme as the nest being cut down to injuries or, more rarely, loss of adult birds and associated impacts on dependent young. It is useful, therefore, to have basic emergency planning procedures in place in order to set out broad principles of how the project would respond to different scenarios; although it is important to recognise that not every eventuality can be foreseen.

7.8.1. Predation

Predation is a natural occurrence, but for rare species that nest individually, it can have a disproportionate effect at a wider population level.

Given the current status of the Osprey in Wales, close attention should be paid to the presence of likely predators such as corvids and, potentially, mammals. A wide range of non-lethal methods of deterrence are available and should always be fully explored; see NRW website for a summary.

A set of protocols regarding how predation/disturbance should be approached could be drafted and kept under review.

In February 2023, Welsh Water installed a metal sleeve to the base of the pole. This should help to deter climbing predators (e.g. pine marten).

7.8.2. Nest is cut down/falls down

A replacement nest should be sited as close as is practical to the existing site as soon as possible. Experience from Scotland and elsewhere shows that Ospreys will readily occupy replacement nests, but that speed is of the essence. If eggs are lost early in the incubation period Ospreys can sometimes lay a replacement clutch ten days to two weeks later. Even if the Ospreys do not re-lay, replacing the nest as soon as possible should encourage the birds to remain in the vicinity of the nest, and facilitate future site fidelity.

7.8.3. Geese take-over the nest

Greylag and Canada Geese *Branta canadensis*, which both occur in the Llyn Brenig area, frequently occupy Osprey nests in other parts of the species' range. In such instances Ospreys can find it very difficult to remove them, particularly if geese occupy a nest early in the spring before Ospreys return from migration.

If a pair of geese take over the nest, as observed in 2021, then it is important that any goose eggs are removed under licence, in a timely manner. This will encourage the geese to move elsewhere and, if undertaken quickly, encourage the Ospreys to return to the nest in time to breed. It would be advisable to apply to NRW in advance of the return of any Ospreys to the site, to ensure that the appropriate licence is in place should this scenario unfold.

The 2023 licence is in place in advance of any problems, reference S092006/1. The first course of action will be to use cameras as an early warning system of any attempt to breed on the nest by species other than ospreys. A bird scaring laser will be deployed to deter the birds on each occasion, by licenced staff. Only as a last resort would licenced egg removal be carried out.

7.8.4. Intervention at nests

In some extreme cases it may be necessary to intervene at a nest, but this should be seen as a last resort. The most likely scenario, as observed at other sites in the UK, is the breeding male being injured or lost while provisioning young. In these circumstances an elevated feeding platform can be used to provide supplementary food to prevent the female leaving vulnerable young for prolonged periods to forage. This should be installed near the nest, and fresh fish added once daily by a person with the appropriate Schedule 1 licence, and after consultation with NRW. Supplementary feeding should continue until the male has recovered, or at least until dependent young are large enough to thermoregulate themselves (allowing the female to leave them to forage). If a similar scenario occurs during incubation, intervention is unlikely to be successful, and should not be attempted, but advice from relevant experts should be sought. In 2023, Welsh Water applied for a licence amendment, in conjunction with the amendment required to deliver 7.8.5, that would allow for these actions to be carried out. The whole licence amendment was refused by NRW, on the basis that NRW do not yet have a supplementary feeding policy. Therefore until a change in position from NRW, this type of emergency intervention will not be allowed to go ahead.

7.8.5. Grounding of fledglings

Fledging is a hazardous time for young Ospreys and juveniles can sometimes become grounded when leaving the nest for the first time. It is usually not necessary, or helpful, to intervene in these circumstances. However, if a juvenile is grounded in a location where it is unlikely to extricate itself without assistance, or if it is ill or injured, the project should intervene. The bird should be recovered by a suitably experienced individual, and taken for veterinary treatment or released close to the nest. The nest itself should not be approached if there are chicks aged > 6.5 weeks that are yet to fly. Doing so could result in premature fledging. The nest should only be approached under the supervision of a person with the appropriate Schedule 1 licence. In 2023, Welsh Water applied for a licence amendment, in conjunction with the amendment required to deliver 7.8.4, that would allow for these actions to be carried out. The whole licence amendment was refused by NRW (on the basis of the request for

7.8.4). Therefore until a change in position from NRW, this type of emergency intervention will not be allowed to go ahead.

7.8.6. Other scenarios

A range of other scenarios may occur at the nest that cannot be reasonably predicted. In this situation the project team should consult with appropriate experts to decide on a suitable response.

7.9. Management of other artificial nests

A number of other artificial nests are located in the vicinity of Llyn Brenig, as shown in Figure 1. There are many examples in the UK and Europe of Ospreys rearing young simultaneously at nests <1 km apart, but in recent years concerns have been raised that if artificial nests are situated in close proximity to each other it can facilitate polygamous behaviour or increase interference by young non-breeding birds who occupy vacant artificial nests close to established active nests. In view of this, a number of artificial nests at Llyn Brenig are covered in order to prevent Ospreys using them. This methodology also ensures that the Ospreys use the nest that can be best protected, which is particularly important in view of events in 2021 when the pole was cut down.

Roy Dennis Wildlife Foundation (RDWF) recommend that new artificial nests are erected at least 2km from each other, and out of direct line of sight (RDWF 2017). As such, it is advisable to continue the practice of covering other nests for the short-term at least, given that the existing nest is considered the best and safest location for breeding Ospreys. However, any nests situated 2km or more from the existing nest should be kept well maintained in order to maximise the chance of them being occupied by other Ospreys. Llyn Brenig and the surrounding water bodies have the capacity to support at least 3-5 pairs of breeding Ospreys and so sites for additional artificial nests should be investigated, in addition to the three nests that have been built close to neighbouring water bodies. This should be done in consultation with other Osprey groups to ensure there is a coordinated approach in the local area.

7.10. Project management and governance

A project steering group, with representatives of NWWT and Welsh Water, will meet on a monthly basis through the year to monitor progress against this plan. This core team would

also be responsible for publishing and analysing the results of annual monitoring, including the effectiveness of exclusion zones.

7.11. Conclusion and summary of recommendations

The key recommendations of this plan are as follows:

- Implement additional security measures at the nest;
- Continue to implement a 150m exclusion zone for boat traffic;
- Implement a new 750m exclusion zone for all watersports and open-water swimming. These activities should only be permitted in carefully controlled zones;
- Implement a 250m exclusion zone on land around the nest. The only access within this zone should be strictly-controlled access to the viewing hide, with visitors accompanied by staff/volunteers at all times;
- Carefully consider any activities planned for a second zone, 250m-750m from the nest, on a case-by-case basis, in consultation with relevant experts.
- Do not permit the use of drones within 750m of the nest.
- Fell the forestry block adjacent to the nest in a carefully planned manner, as detailed in section 7.6.;
- Relay live images of the nest to the Visitor Centre and NWWT Lookout, and stream online;
- Undertake 24-hour protection of the nest during incubation and, potentially, the early part of the nestling stage;
- Closely monitor Osprey breeding activity, and record key ecological data;
- Record any instances of disturbance at the nest, as detailed in section 7.7.5;
- Undertake ‘control’ observations of Ospreys during randomly allocated one-hour blocks throughout the breeding season, as detailed in section 7.7.5.\
- Ring any chicks in the nest, when they are aged approximately 5-6 weeks, as detailed in section 7.7.6.
- Following emergency planning procedures outlined in section 7.8. relating to various scenarios that may occur as follows: preventing predation; nest destruction; occupation of the nest by geese; supplementary feeding; and grounding of fledglings;
- Continue the policy of covering artificial nests situated within 2km of the main nest, but actively seek sites for new artificial nests in the local area; working closely with other Osprey groups where appropriate to facilitate a coordinated approach.
- Establish a project steering group to monitor effectiveness of this plan.

- Publish annual summary of the results of monitoring at the nest and 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 Llyn Brenig, should they return and occupy the nest. 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 project steering group to review progress on a monthly basis to identify any potential issues and to rectify them as soon as possible. Publishing an annual monitoring and evaluation report will provide an important summary of these findings and be of value to other recreational sites that may be balancing the needs of protecting wildlife while permitting controlled recreation in a wildlife-sensitive manner.

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Appendix 1. NRW Communication Regarding Licence Amendments

RE: S092537-2 - Application Decision - Amendment Request for Osprey Licence

SL Species Licensing <trwyddedrhywogaeth@cyfoethnaturiolcymru.gov.uk>
To [redacted]

Reply | Reply All | Forward

Thu 17/08/2023 14:2

You forwarded this message on 19/08/2023 09:05.

******** External Mail ********

Dear [redacted]

I am writing to you regarding your recent amendment request for the above mentioned licence.

NRW has refused the amendment request for the following reason:

- At present, NRW does not have a policy position on supplementary feeding of Ospreys at the nest. We aim to consider this issue in a wider context and hope to come to a policy position in time for next year's breeding season.

As such, we recommend that you reapply early next year. We will aim to keep you up to date with any discussions and any change n our position.