

Appeal by Hendy Wind Farm Ltd against refusal of planning permission to construct and operate 7 wind turbines with a maximum tip height of 110m and maximum hub height of 69m together with ancillary development comprising substation, control building, new and upgraded access points and tracks, hard standing and temporary compound and associated works at land off A44, SW of Llandegley, Llandrindod Wells, Powys, LD1 5UG.

Evidence of Nicholas Gray Myhill - ORNITHOLOGY

on behalf of

Brecon and Radnor Branch of The Campaign for the Protection of Rural Wales



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2017-2018

Witness details

My name is Nicholas Gray Myhill.

My address is Llanwrthwl, Llandrindod Wells.

I have worked all my life in farming and nature conservation, despite originally studying Languages at Brasenose College, Oxford from 1968 to 1972.

After working then on a Radnorshire farm for two years, I joined the Forestry Commission as a Wildlife Ranger. During the next 10 years, I specialised in deer management and nature conservation. I initiated the first Forestry Commission conservation maps and plans for conservation actions, and worked in conjunction with the Nature Conservancy Council on the management of SSSI ancient woodlands. My responsibilities included working with scientists conducting studies in Commission woodlands, such as Dr Graham Hiron, later to become Senior Scientific Officer for the RSPB, when he was studying Woodcock in Nottinghamshire and Derbyshire. During the last three years I was increasingly involved with training other wildlife rangers, and writing a book entitled 'Wildlife Rangers Handbook', first published in 1985.

Soon after this book was published, I left the Commission and began working as a self-employed wildlife conservation consultant, under the business name of 'Sherwood Wildlife Conservation Consultancy'. I worked for several major clients. I was the first wildlife conservation adviser for Center Parks in the UK, assessing potential development sites, designing and implementing conservation measures. I provided advice for the ecologist Penny Anderson and the British Airport Authority during the Stansted expansion, and carried out similar works on dealing with deer management issues on trunk roads for Mott MacDonald. I also worked on a number of private landed estates, providing deer management and wider conservation advice, including Thoresby Park, Annesley Hall, Powys Castle Park. Increasingly, however, my work was with the National Rivers Authority (later the Environment Agency), and I began to specialise in wetland habitat conservation, working with Nigel Holmes and Jeremy Purseglove, leading biologists in this field. As a result of this experience, In 1989 I was

part of a team put together by Professor Claude Henri of the École Polytechnique in Paris, to successfully oppose proposed canalisation works to the River Loire. In 1990 I was invited to Paris to present the British use of SSSI designation to a EU forum of European academics. In 1990 I was appointed as the conservation consultant on the conservation-engineering-financing management team in charge of the £48 million re-construction of the flood banks that enclose the Ouse Washes in East Anglia. In this position I was responsible for finding and implementing solutions to the problem of taking major engineering works through this 30 kilometer long, 2,500 hectare biological site of Special Scientific Interest, internationally designated as a Ramsar Site for its wetland habitat and associated birds. This entailed nine years of close work with the RSPB, and the Wildfowl and Wetland Trust, including initiating conservation gains, compensatory works, and major alleviations for internationally significant wintering bird flocks and rare breeding bird species (such as Garganey and all three British species of Harrier).

From 1995 to 1999 I was Chairman of the Radnorshire Wildlife Trust. At the same time I had bought a farm of 120 acres back in Radnorshire (where I have lived most of my life), farming livestock organically. Subsequently I farmed with my partner and future wife until 2001. After this date, I increasingly provided advice on farms locally, working with clients such as Sir Simon Gourlay, and (assessing woodlands for grant purposes) Powys County Council.

I have continued in retirement to provide advice in my main line of expertise, which I would describe as seeking solutions and constructive compromises between farming and nature conservation. I am presently writing a book dealing with possible future farm support payments for nature conservation benefit. I also act as a voluntary adviser for the Woodland Trust, conducting biological surveys of ancient woodland and giving woodland management advice in the upper River Wye area. Since the end of 2017, I have been engaged on a three year project for the Powys Moorland Project, funded by Welsh government, to survey five key bird species – Grouse, Curlew, Lapwing, Golden Plover and Hen Harrier – on kept heather moorlands in Radnorshire, and to generate conservation solutions acceptable to all parties.

I have watched and studied wildlife as my chief preoccupation from an early age, not only within the UK and Aragón – where I have a second home in a National Reserve – but also in Singapore, Malaya, France, Germany, Zambia, India and the USA. My greatest interest now lies at home, particularly in conservation solutions and actions for birds in the managed British countryside, including the management of small-scale private nature reserves.

1 Bird report - SUMMARY

1.1 Starling

- 1.1.1 A significant direct impact to birds of the proposed wind-farm development would be on **Starlings** (*Sturnus vulgaris*). The thicket-stage conifer woodland in and around which the turbines would be situated is the main winter roosting area for this species in Radnorshire ^[1].
- 1.1.2 It is basic practice for evaluation purposes to put likely ecological impacts in perspective. The treatment of Starlings in the Environmental Statement (ES) falls short in this respect.
- 1.1.3 A primary criterion is global perspective. In the matter of bird conservation, the British Isles are crucial internationally for two resources: its breeding sea-bird populations, and its wintering birds. It is worth noting that the term 'wintering birds' can be misleading. Many species and races of geese, wildfowl, waders and other birds that breed further north spend an essential half or more of their life in the British Isles. The reason for Britain's vital importance for northern palaeoartic species is the relatively mild winters compared with the continental mass ^[2].
- 1.1.4 A second criterion which has not been given proper consideration in this ES is threat. It is widely demonstrated that the greatest decline in bird numbers in the British Isles since the 1960s has been in farmland birds. Where a decline of 100% represents extinction as a breeding bird, the Starling is in fifth place in this unenviable ranking, at an estimated 81% ^[3]. This huge decline in breeding numbers is not limited to Britain, so accordingly winter numbers are also falling.
- 1.1.5 The present UK conservation listing for Starlings has been raised to 'red', while it has lost its 'secure' status for its European listing ^[4].
- 1.1.6 The developer suggests it is unlikely that the wind-turbines would disturb the Starlings at the Hendy roost because they rarely fly as high as the lowest part of the blades at

28 metres. This is indefensible. Even if it were possible to believe that Starlings would not be deterred from using this roost by turbine blades cutting the air so close above the roost – which I don't think it is – one of the best-known facts about British birds is that murmurations of Starlings perform flock acrobatics as they approach their roost, regularly swirling high into the sky. Starlings were regularly observed on our surveys flying up to an estimated 100 metres high and beyond.

- 1.1.7 Data from these surveys is shown in an Appendix. Even allowing for margins of possible error in all counting methodologies of large flocks, it is clear the estimate given in the ES falls grossly short of reality. The counts I have conducted corroborate Peter Jennings's figure of an average of 135,000 to 180,000 birds, with larger number observable at peak migration times ^[1].
- 1.1.8 The Radnorshire Wildlife Trust has been seeking designation of this Starling roost as a Site of Special Scientific Interest (SSSI). RWT has pointed out that – according to NCC guidelines – this site would already appear to qualify on the basis of being a roost regularly holding in excess of 1% of a national (UK) population.
- 1.1.9 Every ornithologist I have spoken with – while preparing this statement – thinks the roost would be severely affected, probably lost.
- 1.1.10 The likelihood of loss of the major Starling roost in Radnorshire must be considered a significant negative impact of the proposed wind-turbine site.

1.2 Redwing and Fieldfare

- 1.2.1 During surveying, large numbers of **Redwing** (*Turdus iliacus*) and **Fieldfare** (*Turdus pilaris*) were also using the wood as a roost. Peter Jennings in his treatment of Redwing specifies the Llandegley/Penybont area ^[5]. In a letter of objection written on 15th September 2014, he stated: “The [Llandegley Rhos] roost also includes from time to time up to at least 10,000 thrushes mostly Redwing and Fieldfare.” The mixture of good hedges for feeding and a good roosting-site in this area explains its importance for these species.

1.2.2 It is likely that this roost would also be severely disrupted or lost for significant numbers of wintering thrushes.

1.3 Birds of Prey

1.3.1 That **birds of prey** should have been considered more carefully is apparent from the following statement in 'The Birds of Radnorshire' ^[1]: "The current age and planting density of the plantation [at Llandegley Rhos] seems to be ideal for roosting Starlings, and although predators such as Hen Harrier, Merlin, Sparrowhawk, Goshawk and Short-eared Owl are in attendance most evenings, the site is undoubtedly safer than ones used in the area in the past."

1.3.2 Two of the species which Peter Jennings specifies are of exceptionally high conservation significance. Most television-watchers are aware of the RSPB campaign regarding the **Hen Harrier** (*Circus cyaneus*), claiming this species is approaching extinction as a breeding bird in England. However, Hen Harriers *do* breed in Radnorshire. I am at present involved in conducting bird surveys on moorlands in Radnorshire – with support from the Welsh Assembly government – in which Hen Harrier is one of five key species. The object of the three-year-long project is to facilitate joint efforts between farmers, gamekeepers and conservationists to conserve these five species, all now threatened.

1.3.3 Both because of the rarity status of Hen Harriers (it is on the British Trust for Ornithology's Red list ^[4]), and because – as I can personally attest – it is possible for this species to be breeding in locations while only betraying its presence with the occasional sighting, regular sightings of birds here demonstrate that this area is at least a significant feeding ground, forming part of the habitat allowing its survival in Powys.

1.3.4 **Merlin** (*Falco columbarius*) is also on the British Trust for Ornithology's Birds of Conservation Concern Red List ^[4]. It was observed at the site on two of our surveys, by myself and Richard Knight.

- 1.3.5 As with Hen Harrier, the figures for Merlin indicate that in Radnorshire there is a viable – albeit threatened – small breeding population of a species which is nationally scarce.
- 1.3.6 ‘Birds of Radnorshire’ shows an average number of 11 pairs from the 1980s, declining further in recent years ^[6].
- 1.3.7 It’s worth pointing out now how the significance of the Starling roost is further explained by the use made of the Llandegley Rhos area by these two increasingly rare birds of prey. I am not aware of anywhere in Wales where more exciting views of these species are available to those with eyes to see.
- 1.3.8 A specific criticism can here be made of the ES. The choice of the Kite as one of their birds of prey species in this location was ill-judged, given the considerably greater conservation concerns associated with Hen Harrier and Merlin.

1.4 Curlew

- 1.4.1 Another bird species which should have been given close consideration in the ES is the **Curlew** (*Numenius arquata*). Now an uncommon breeding bird facing possible extinction in Radnorshire, it belongs to a group of birds that has declined more dramatically in Wales than in other parts of Britain, this decline having taken place largely during the last thirty years.
- 1.4.2 Curlew is one of 5 target species in my present work as bird surveyor in the Powys Moorland Partnership scheme, supported by Welsh Government. The species was also the subject a day-long workshop at the Royal Welsh Showground in January 2018. These two actions illustrate the importance given to the protection of Curlew in Radnorshire.
- 1.4.3 The fact that Curlew are known to be breeding on Llandegley Rhos should have been considered in the ES.

1.5 Migrating birds: Closer attention should have been given to the impact on migrating birds, including waders, given the known importance of nearby Llanwefr Pool in this respect. Neither this pool nor migrating birds are considered in the ES. In his letter of objection dated 11/9/14, Peter Jennings wrote: “the area lies on a major migratory bird flight path which takes and receives birds from all points north and north east to and from the Edw and thence the Wye valleys.” In an email to me dated 7/2/18 he writes: “Most significant in my mind is that the site is on a major route in both spring and autumn, and as this is mostly done at night there is a need for extensive sound monitoring of calling migrants passing over during the hours of darkness. This is now a well-established technique which can identify species and, to some extent, numbers using a particular migratory corridor.”

1.6 Site: Llandegley Rhos is a remaining fragment of the vast areas of common-land which once stretched from Maelinydd Common in the north to Penybont Common and Radnor Forest ^[7].

1.7 Ornithological interest: These two factors – migratory corridor, long history of unimproved habitat (water features, rich hedges, unimproved grassland) – no doubt explain the exceptional ornithological interest of this area threatened by windfarm development.

1.8 In conclusion: while Starlings provide the most spectacular sign of the particular unsuitability of Llandegley Rhos for development as a windfarm – from the viewpoint of bird protection – I hope to have indicated wider reasons why it is considered one of the most remarkable bird sites in Radnorshire. Any proper assessment should address the species and categories of bird ecology I have exemplified. It should certainly go further, and with more accuracy, than the ES has gone.

1. The Birds of Radnorshire, Peter Jennings, 2014, p251 (henceforth Jennings 2014)
2. Farming and Birds, Ian Newton, 2017, p19 (henceforth Newton 2017).
3. Newton 2017, p27-8, 31.
4. British Trust for Ornithology, Birds of Conservation Concern: the Red List for Birds, constantly updated on BTO website.
5. Jennings 2014, p204.
6. Jennings 2014, p85.
7. Birds, Scythes and Combines, Michael Shrubbs, 2003, p98.

2 Bird report – FULL TEXT

2.1 A significant direct impact to birds of the proposed wind-farm development would be on **Starlings** (*Sturnus vulgaris*). The thicket-stage conifer woodland in and around which the turbines would be situated is the main winter roosting area for this species in Radnorshire [1].

2.2 It is essential for evaluation purposes to put likely ecological impacts in perspective. The treatment of Starlings in the Environmental Statement (ES) falls short in this respect.

2.3 A primary criterion in such assessment is the global perspective, wherever significant. In the matter of bird conservation, the British Isles are crucial internationally for two resources: its breeding sea-bird populations, and its wintering birds. It is worth noting that the term ‘wintering birds’ can be misleading. Many species and races of geese, wildfowl, waders and other birds spend an essential half or more of their life in the British Isles. The reason for Britain’s vital importance for northern palaeoartic species in this respect is the relatively mild winters compared with the continental mass [2].

2.4 Though Starlings do breed in Britain, a far larger and internationally significant number over-winter here.

2.5 A second criterion which has not been given proper consideration in this ES is threat. It is widely demonstrated that the greatest decline in bird numbers in the British Isles since the 1960s has been in farmland birds [3]. Where a decline of 100% represents extinction, the breeding population of four farmland species (Grey Partridge, Turtle Dove, Tree Sparrow and Corn Bunting) declined from 1970 to 2013 by 90%, followed in fifth place by Starling at an estimated 81% [4]. Merely from 1995 to 2013 the Starling declined by 50% [5]. This decline in breeding numbers is not limited to Britain, so accordingly winter numbers have also fallen. This is predictable. Michael Shrubbs – in his penetrating analysis of farmland birds [6] – has demonstrated that declines in farm bird species in Britain have often been followed by those elsewhere in Europe, as modern agricultural practices have been implemented later in most European countries. Accordingly, the present UK

conservation listing for Starlings has been raised to 'red', while it has lost its 'secure' status for its European listing ^[7].

2.6 The developer suggests it is unlikely that the wind-turbines would disturb the Starlings at the Hendy roost because they rarely fly as high as the lowest part of the blades at 28 metres. This is indefensible. Even if it were possible to believe that Starlings would not be deterred from using this roost temporarily by construction activities and permanently by turbine blades cutting the air so close above the roost – which I don't think it is – one of the best-known facts about British birds is that murmurations of Starlings perform flock acrobatics as they approach their roost, regularly swirling high into the sky.

2.7 Survey data gathered from recent observations of Starlings coming into roost at this site is shown in an Appendix below. Even allowing for margins of possible error in all such counting methodologies, it is clear that the estimate given in the ES falls grossly short of reality (possibly due to inappropriate surveying times) by a factor of at least 10. The counts I have conducted corroborate Peter Jennings's figure of an average of 135,000 to 180,000 birds, with larger number observable at peak migration times ^[1].

2.8 The latest figure put on the wintering population of Starlings in the UK was 18 million, in the British Trust for Ornithology 1998 Atlas of Wintering Birds. Since 1998, the Atlas has ceased to give numerical estimates, merely indicating 'degree of further decline' of Starlings, which is high through most of the country. Winter numbers are therefore now well below 18 million. This could leave the Llandegley roost representing well in excess of 1% of the UK population.

2.9 Because of such modern estimates, Radnorshire Wildlife Trust has been seeking designation of this Starling roost as a Site of Special Scientific Interest (SSSI). The RWT has pointed out that – according to JNCC guidelines for biological selection of SSSI – the site would appear to qualify on the basis of representing a roost regularly holding in excess of 1% of the national (UK) population. Dave Drewett, Senior Ecologist of National Resources Wales – has replied to Julian Jones in an email dated 6th November 2017: "I don't think that NRW could consider notifying starling roosts as SSSIs at present without further expert guidance (from JNCC) and certainly not without accurate comparative data from

the top roost sites in Wales.” Julian Jones, of RWT, has stated to me on 9/2/18 that is clear the NRW accepts there is need for further study to establish the significance of this Starling roost.

2.10 Even leaving aside the risk of direct disruption and injury to birds, every ornithologist I have spoken with – while preparing this statement – thinks the roost would be severely affected, probably lost.

2.11 The likelihood of loss of the major Starling roost in Radnorshire must be considered a significant negative impact of the proposed wind-turbine site.

2.12 It was clear to myself and fellow-surveyor Richard Knight that large numbers of **Redwing** (*Turdus iliacus*) and **Fieldfare** (*Turdus pilaris*) were also using the wood as a roost. Peter Jennings mentions this area in his treatment of the latter species ^[7]. The mixture of good hedges for feeding and a good roosting-site in this area explains its importance for these species. Peter Jennings – in a letter of objection written on 15th September 2014 – stated: “The roost also includes from time to time up to at least 10,000 thrushes mostly Redwing and Fieldfare.”

2.13 Though less spectacular than the case of Starlings, it is likely that this significant roost would also be disrupted or lost for these wintering thrushes.

2.14 That **birds of prey** should have been considered on this site more carefully is apparent from the following statement in ‘The Birds of Radnorshire’ ^[8]: “The current age and planting density of the plantation [at Llandegley Rhos] seems to be ideal for roosting Starlings and although predators such as Hen Harrier, Merlin, Sparrowhawk, Goshawk and Short-eared Owl are in attendance most evenings, the site is undoubtedly safer than ones used in the area in the past.”

2.15 Peter Jennings’ book is considered one of the most authoritative reference books in Welsh ornithology. It is not only the product of thousands of hours of accumulating data on birds in the county, he has extracted from that data some remarkable insights uninfluenced by what others have written. As a result, he has demonstrated, for example,

how generalisations made from studies based largely in England do not necessarily apply to Radnorshire. All this is based on his data for individual species, accumulated during several decades as Radnorshire's County Bird Recorder.

2.16 Two of the birds of prey which Peter Jennings specifies in the above comment on Llandegley Rhos are of particularly high conservation significance. Most television-watchers are aware of the RSPB campaign regarding the **Hen Harrier** (*Circus cyaneus*) which this respected conservation organisation claims may be approaching extinction as a breeding bird in England. However, it *does* breed in Radnorshire. I am at present involved in conducting bird surveys on moorlands in Radnorshire – with support from the Welsh Assembly government – in which Hen Harrier is one of five key species. The object of the three-year-long project – known as the Powys Moorland Project – is to increase co-operation between farmers, gamekeepers and conservationists directed towards conservation of these five key species, all now threatened or in decline.

2.17 Sightings of Hen Harrier on this site must be considered highly significant, both because of the rarity status of this species (it is on the British Trust for Ornithology's Red list ^[9]) and because – as I can personally attest – it is possible for this species to be breeding in locations while only betraying its presence with the occasional sighting. Regular sightings of birds here demonstrate that this area is at least a significant feeding ground, and forms part of the habitat allowing its survival in Powys as a rare resident breeding bird. Referring again to 'Birds of Radnorshire', Peter Jennings states of Hen Harrier: "Breeding seems likely to have taken place [in Radnorshire] in at least one or two years in the 1970s with one to three pairs regularly from 1983 to 2001 and up to eight pairs annually since then with an increasing number of birds summering." ^[10]

2.18 Turning to another bird of prey cited by Peter Jennings above as 'in attendance most evenings', the **Merlin** (*Falco columbarius*) is also on the British Trust for Ornithology's Birds of Conservation Concern Red List ^[9]. Commoner in Radnorshire in the 1960s – as I can personally attest – Peter Jennings provides the following observations and figures: "A complete and thorough survey has never been undertaken [for Merlins in Radnorshire], and it would be very difficult. However, in the late 1970s up to ten pairs were found whilst

in the 1980s visits to previously used and likely places found six to eight in 1987, nine in 1988, 13 in 1991, seven in 1998 and 10 in 1999. Thirteen pairs were found in 2003, nine in 2006, seven in 2007, eight in 2008, 12 in 2010 but just six in 2011 and seven in 2012.”

2.19 As with Hen Harrier, the figures for Merlin indicate that in Radnorshire there is a viable – albeit threatened – small breeding population of a species which is nationally scarce.

2.20 It is worth pointing out now how the importance of the Starling roost is further explained by the use made of the Llandegley Rhos area by these two rare birds of prey.

2.21 A specific criticism can now be made of the ES. The choice of the Kite as one of their birds of prey species in this location appears ill-judged, given the considerably greater conservation concerns associated with Hen Harrier and Merlin.

2.22 Another bird species which should have been given close consideration in the ES is the **Curlew** (*Numenius arquata*). Once – within my own experience dating back to the 1960s – a common bird in Radnorshire (indeed popularly named ‘the Radnorshire cuckoo’ by local people), it is now an uncommon breeding bird facing possible extinction here. It belongs to a group of birds that has declined more dramatically in Wales than in other parts of Britain, this decline having taken place largely during the last thirty years.

2.23 The main initial reason for this decline may be summarized as widespread drainage of wet pastures and loss of rough grassland such as Llandegley Rhos. It is worth noting that historically Llandegley Rhos Common is likely to be a fragment remaining of the vast area of common-land which once stretched from Maelinydd Common in the north to Penybont Common in the west down to Llandegley. This is a likely explanation for the survival of Curlew here and on Penybont Common.

2.24 Curlew is one of the five target species in my present work as bird surveyor in the Powys Moorland Partnership scheme being supported by Welsh Government. This species was also the subject a day-long workshop at the Royal Welsh Showground in January 2018. These two actions underline the importance given to the protection of this species in Radnorshire.

- 2.25 It must be considered remiss of the developers not to have noted that Curlew are nesting either on or near the common, which I understand to be the case. Ms Penny Everett living at Pye Corner – the property closest to the proposed development – has told me she has heard and observed Curlews on Llandegley Rhos Common in every one of the last five years for the full extent of the breeding season (personal communication). This observation is backed up by the testimony of experienced bird observers.
- 2.26 Given the present endangered status of this once-common species as a breeding bird in Radnorshire, this must be considered a highly significant potential negative impact of the proposed development which should not have been overlooked.
- 2.27 Peter Jennings has communicated personally that he believes this site (Llandegley Rhos) to be important for nocturnal birds, and these would need to be studied in the case of an appeal. Such birds – **Jack Snipe** (*Lymnocyptes minimus*), **Woodcock** (*Scolopax rusticola*) would be good examples – are thought to occur in significant numbers on this site, though the necessary night-time survey work has never been done here, as is unfortunately true of most locations. The equipment needed to undertake such surveying is recently developed and expensive. The Jack Snipe occurring in wet rough grassy sites in Radnorshire are wintering birds travelling from a Russian population which dwindled during the twentieth century ^[12]. Like many wintering species, individuals are remarkably faithful to a very small site, such as a short length of ditch, in their wintering grounds ^[13].
- 2.28 Curlew, Jack Snipe and Woodcock belong to the group of birds known as waders. Like birds of prey, these should have been given closer attention in terms of possible impact on this site, given the known importance of nearby Llanwefr Pool in this respect, especially during times of migration – not mentioned in the ES. In his letter of objection dated 11/9/14 already referred to, Peter Jennings writes: “the area lies on a major migratory bird flight path which takes and receives birds from all points north and north east to and from the Edw and thence the Wye valleys.” More recently in an email to Gareth Rees-Roberts dated 7/2/18 he has written: “Most significantly in my mind is that the site is on a major route in both spring and autumn, and as this is mostly done at night there is a need for extensive sound monitoring of calling migrants passing over during the hours of

darkness. This is now a well-established technique which can identify species and, to some extent, numbers using a particular migratory corridor.”

2.29 Other formerly common birds now in decline which are likely to be affected on this site would include **Golden Plover** (*Pluvialis apricaria*), **Skylark** (*Alauda arvensis*), **Whinchat** (*Saxicola rubetra*), **Reed Bunting** (*Emberiza schoeniclus*), plus users of conifer woodland such as **Pied Flycatcher** (*Ficedula hypoleuca*), all of which I have observed personally at this site in the past. An appropriate study of migrating birds likely to be affected negatively would extend the list more.

2.30 So, while Starlings provide the most identifiable sign of the unsuitability of this site from the viewpoint of bird protection, its importance goes deeper. I trust I have made clear that any proper assessment of birds for this site should include the species, species groups and bird issues I have exemplified. It should certainly go beyond, with more accuracy, than the ES has gone.

2.31 I have sought to demonstrate in a compact statement that a significant impact on significant bird species would be caused by the proposed development. Also that this is not dealt with in an appropriate manner in the ES.

3 Survey of Starlings conducted by Nick Myhill and Richard Knight during the winter of 2017-2018

3.1 For the later surveys (all other than the first two), guidance was taken from available literature, particularly 'The Counting of Starlings at Country Roosts', A.E.J Symonds, 1961. For these later surveys Nick Myhill was accompanied by Richard Knight, a professional ornithologist during all his working life who is highly experienced in counting birds in locations around the world. It is interesting to note that our shared count in the same location (January 27th) gave RK's results as higher than mine. This is likely to be a result of differences when particularly large flocks (say in excess of 2,000 birds) are passing. The errors in smaller, more discrete flocks are likely to be slight, because these can easily be broken down visually into smaller groups of recognizable numbers.

3.2 Sunday November 5th 2017, for an hour from 4.15pm. Starlings coming in from north side of wood, counted by NM facing north from Ordnance Survey location SO138504. Light wind from east, no rain, cold weather, open sky: In excess of 50,000 birds.

3.3 Sunday November 12th 2017, for an hour from 4.15pm. Starlings coming in from north side of wood, counted by NM facing north from Ordnance Survey location SO138504. Light wind from SW, some very light drizzle, cool, semi-open sky: 45,000 birds.

3.4 Saturday January 27th 2018, for an hour from 4.20 pm. Starlings coming in from north side of wood, counted by NM and RK facing north from Ordnance Survey location SO138504. Moderately strong wind from south, some very light drizzle, cold, semi-open sky, fairly overcast: 55,000 birds (NGM), 77,000 birds (RK), using the methodology of Symonds.

3.5 Wednesday 7th February 2018, for an hour from 4.15pm. No wind, cold, semi-open sky. Starlings coming in from north side of wood, counted by RK facing north from Ordnance Survey location SO138504: 177,440 birds.

3.6 Starlings coming in from west side of wood, counted by NM facing east from Ordnance Survey location SO134600: 33,700 birds.

3.7 NGM and RK both marked down that approximately 7,800 birds were counted by both, in a large flock that flew directly between us. This would still give a total of over 200,000 birds, and this evening was undoubtedly the one when the largest number of birds to date were seen flying in. Both surveyors were aware of further numbers of Starlings flying in from the South and West of the wood, too far away to count.)

3.8 Friday 9th February 2018, for an hour and a half from 4.00pm. Steady wind from NW, very cold, mostly open sky. Starlings coming from north side of wood, counted by NM facing north from Ordnance Survey location SO138504: 34,010 birds.

3.9 Starlings coming in from east side of wood, counted by RK facing west from Ordnance Survey location SO134600: 182,200 birds.

3.10 Though it was highly difficult to look at other birds, this evening was exceptional for the number of raptors noted, including 3-4 Sparrowhawks, 2 Goshawks, 1 Peregrine Falcon, 1 Merlin, up to 10 Buzzards. One Goshawk and one female Sparrowhawk in particular provided spectacular sights while swooping among the incoming Starlings, which apparently as a result spent more time than on other evenings restlessly swirling high up into the air in their murmurations.

3.11 General Comments:

3.11.1 There appears to have been an increase in the number of birds during the later counts. It has been remarked by previous observers (including Peter Jennings) that peak numbers are often observed from late February to early March, as birds gather for the migration to breeding grounds.

3.11.2 It was not possible, without further observers, to know whether birds were flying in from different directions on different evenings, but it is likely birds flew in from all points (including those not surveyed) on all evenings. A large group of people watched the site on the evening of Sunday January 28th, and reported birds flying in from all points. This suggests strongly that all our figures must be underestimates for gauging the total number of Starlings using the Llandegley Rhos roost.

Notes

1. The Birds of Radnorshire, Peter Jennings, 2014, p251 (henceforth Jennings 2014)
2. Farming and Birds, Ian Newton, 2017, p19 (henceforth Newton 2017). The Lapwing, Michael Shrubbs 2007, #6 *passim*.
3. Birds, Scythes and Combines, Michael Shrubbs, 2003, *passim* (henceforth Shrubbs 2003); Farming and Birds, Ian Newton, 2017, p27-8, 31 (henceforth Newton 2017). RSPB Handbook of British Birds, 2014 Fourth Edition. RSPB and BTO internet entries on this subject.
4. Newton 2017, p.31.
5. Newton, 2017, p27-8, 31.
6. Shrubbs 2003, *passim*.
7. Jennings 2014, p204.
8. British Trust for Ornithology website.
9. Jennings 2014, p251.
10. British Trust for Ornithology, Birds of Conservation Concern: the Red List for Birds, constantly updated on BTO website. See Ecology Appendix V
11. Jennings 2014, p77.
12. Jennings 2014, p85.
13. RSPB Handbook of British Birds, 2014 Fourth Edition, p134.
14. Jennings 2014, p109.

Appendices

- A: Extracts from Birds of Radnorshire, Peter Jennings 2014 – supplied in electronic & paper format
- B: Extracts Birds, Scythes and Combines, Michael Shrubbs, 2003 & Farming and Birds, Ian Newton, 2017 – supplied in electronic & paper format
- B: Red List European birds - supplied in electronic form
- C: State of UK Birds 2017 - supplied in electronic form
- D: Starling Files – supplied in electronic form & paper format