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From: giles binyon [REDACTED]

Sent: 19 February 2020 12:42

To: Daun Johnson <Daun.Johnson@arun.gov.uk>

Subject: Fwd: Some observations on the use of managed grassland in the Brent Goose Mitigation Plan for Pagham Harbour

Dear Daun Johnson,

Please find this resent email which was sent sometime ago. In accordance with my correspondence with Liz Fatcher [REDACTED] you will hopefully be able to upload onto Arun's Planning Portal.

Thank you kindly.
Giles Binyon

----- Forwarded message -----

Date: Tue, Feb 4, 2020 at 9:33 PM

Subject: Some observations on the use of managed grassland in the Brent Goose Mitigation Plan for Pagham Harbour

Dear Madam/Sir,

Could you please take into account the following observations when you become involved in progressing application P/140/16/OUT (Land south of Summer Lane) with Arun District Council.

1. In support of planning application P/140/16/OUT, which can be found on Arun District Council's Planning Portal, the Brent Goose Mitigation Plan (BGMP) sets aside three fields to be managed for the benefit of Brent Geese. A letter dated 18th October 2018 from Natural England (NE) to Arun District Council pointed out that more geese can forage on permanent grassland than arable land and thus an area of arable land can be replaced with a smaller area of permanent pasture. On 24th October 2018 outline planning consent for P/140/16/OUT was passed.

2. Perimeter measurements of the cultivatable areas of land in two mitigation fields, 9309 and 9029, were taken using a measuring wheel. These figures were applied to Google Maps satellite area measuring tool in order to obtain the areas of cultivatable land within these fields (attachment1 and attachment5). The total area of cultivatable land within all three mitigation fields is approximately 14.21 hectares (attachment1) plus an unknown additional amount via proposed landscaping work on the 'rank wet grassland/ruderal vegetation' (BGMP) in the southern most mitigation field 9309.

Attachment2 shows some recent cutting into the drainage ditch between fields 9029 and 1141 in, what appears to be, an attempt to carry away water. Attachment2 includes photographs in March and April 2019 of crop damage (winter wheat) in these fields. Attachment3 shows damage in January 2020 to grassland also in both these fields. Although in its present form the BGMP does not propose large areas of grassland it does make clear that any sown should include of a high proportion of ryegrass. This is understandable from the point of view of goose foraging (Vickery and Gill, 1999), however, after two weeks of being submerged this cultivar starts to die off followed by weed infiltration (Defra, 2014 section 4.2). Evidence of year-on-year crop damage in fields 9029 and 1141 would mean that the above cultivatable area total of 14.21 hectares (ha) may be overly optimistic. An estimate of the total of all the areas of water damage is 1.1ha (attachment3) bringing the actual useful goose foraging resource area of mitigation land probably closer to a total of 13.11ha, plus an unknown additional amount via proposed landscaping work in field 9309 (3.3. below).

This land area is set against the 18.7ha which will be lost to P/140/16/OUT, the calculation of which has taken account of the cropping history 2011-2017 to allow for seasons of less forage planting (BGMP, paras 2.16 to 2.20). The land lost to development does appear to be of good quality with no water damaged areas (attachment2 and attachment5). It has historically been used by Brent Geese (Sussex Ornithology Society, 2019 para 3.3 ; attachment2).

3. Goose foraging capacities of fields are often measured in terms of droppings per square metre which can then be expressed as the equivalent number of goose days per hectare (ha). This varies in different studies and under different conditions from, for example, 1562 goose days per ha (Vickery, Sutherland and Lane, 1994) to a maximum 4500-5000 goose days per ha (Riddington, Hassel and Lane, 1997).

Achieving the higher capacity figures for grassland is reliant on three factors;

3.1. Regular cutting or grazing.

3.2. Regular fertilizing of the land.

3.3. The ability of the fields to attract large numbers of geese.

Taking each point in turn;

3.1. There is access to two mitigation fields via a farm track and grass ramp at SZ 882 983. Access to the southern most field (9309) can be made via field 9029, getting to the arable part in the west of this field by utilising less wet land beside the northern boundary. It should be feasible to cost and incorporate into the land management plan regular access of machinery here thereby ensuring the sward height is maintained close to 5cm (Vickery and Gill, 1999).

3.2. The mitigation land falls within a nitrate vulnerable zone (www.gov.uk/nitrate-vulnerable-zones) which requires strict control of any fertilizer applications. Compounded by being adjacent to the Pagham Rife which feeds directly into the Special Protection Area (SPA) the application of fertilizers could be ruled out entirely. This is confirmed in 4.4.1 of the BGMP at least as far as grassland creation is concerned.

In managed grassland fertilizer use not only increases the attractiveness of pasture to geese (Riddington et al., 1997) but also helps to overcome the two conflicting objectives for managing grassland in an alternative feeding area (AFA) i.e. increasing attractiveness vs increasing foraging capacity. Brent Geese, in preferring a short sward (5cm), are in danger of depleting the biomass of pasture as the season progresses through November to January (Mckay, Bishop and Ennis, 1994). There is evidence, however, that this preference for shorter sward height can be removed somewhat with the application of fertilizer (Riddington et al., 1997) resulting in attractiveness and a higher foraging capacity combined.

At the time of writing it is believed that NE have been working on a wildfowl energetics model in consultation with Bournemouth University and WWT Consulting. Notwithstanding the fact that there have been no foraging resource predictions presented for this application, it may be useful even at this late stage to consider some estimates of the foraging capacities of the areas concerned. By way of example, and bearing in mind recent bird count figures, the following estimates use existing methodologies.

There are 89 days of individual recorded Brent counts on the development site P/140/16/OUT over the period 02/11/2018 to 03/03/2019, the highest being 3070 on 16/01/2019 which was possibly nearly the entire Pagham Harbour population, and a mean count of 1209 per day (Sussex Ornithology Society, 2019 Appx 1). Despite there also being 19 days with a count of zero, Brent utilised P/140/16/OUT to the maximum during winter 2018/19 and this is not an unusual year (Sussex Ornithology Society, 2019 para 3.3).

Another example of a field which was well utilised by Brent and also planted with winter wheat provides the figure of a density of 21 droppings per square metre (Summers, 1990, field 2 mean of means for 1985/86 and 86/87). For an average 8 hour winter day and defecation interval of 3.4 minutes this equates to 1488 goose days per ha. This is significantly less foraging capacity than the 2400-2600 goose days per ha for managed grassland using no fertilizer (Vickery and Gill, 1999). These figures help to provide a comparison between the foraging capacity of winter wheat in a well utilised site (P/140/16/OUT) and that of grassland in an AFA which, for the purposes of this comparison, is well utilised also.

To replace the 18.7ha of winter wheat in P140/16/OUT would require only 10.7ha of managed grassland using no fertilizer at a capacity of 2600 goose days per ha. As per 2 above, at 13.11ha plus an unknown amount, the productive area of land within the BGMP would be able to provide this. It should be recognised, however, that taking almost all the mitigation land out of any cropping regime to put to permanent pasture is a sea change in the BGMP and may be difficult to secure into any land management plan.

3.3. A large central proportion (3.9ha) of the southern most mitigation field 9309 is 'rank wet grassland/ruderal vegetation' (BGMP and see attachment4). The BGMP proposes that this area will be over seeded by a grassland lay and will incorporate two wetland scrapes to provide freshwater. Observing the condition of the land here (attachment4) may give some concern as to the ease of achieving this or, indeed, the necessity for the provision of water. For it to be successfully achieved would require raising some of this land clear above the water level. Brent geese are wary animals requiring a clear view of potential danger. The conflict between creating drier areas against

interrupting geese sight lines is acknowledged in the BGMP (paras 3.8 and 4.3.2) but given the examples of water depth in this rank wetland (attachment4) it is clear that some raising of soil level would be required. The BGMP states that the proposed excavated scrapes of total 0.4ha will provide material for the creation of areas less susceptible to water inundation. Considering 0.4ha is just 10% of this rank wetland area it may be wise to consider additional ways of raising the level of this land in order to make some of it suitable for grassland. Without this work, over-sowing with any seed mix, in particular one rich in ryegrass (BGMP 3.8.), could be of very limited success. An effort to open sight lines would also require regular rush and reed management. The use and storage of low ground-pressure machinery may need to be considered in the land management plan. This would be especially useful for work near the deep and concealed water course present within this rank wetland, close to and parallel with its western boundary (attachment4).

The BGMP intends to open up sight lines to the south and north in this field (9309) by proposed boundary vegetation removal. The vegetation on the southern boundary continues on into the Special Protection Area (SPA) and removing any on the mitigation land side of this boundary would likely make no tangible difference to sight lines here (attachment4). The BGMP does not mention any permissions for incursion into the SPA in order to complete this task. The benefit of vegetation removal along the northern boundary would depend on the above proposed landscaping work. The area of rank wetland runs up to this boundary, however, there is a reduction in depth of water at this northern end. As such, careful landscaping work here should be able to keep to a minimum the interruption to sight lines caused by raising of the land along this boundary. Even with open boundaries to the north, the two relatively narrow and small arable fields (1.3ha and 1.84ha) separated by a 137-155M wide boundary of landscaping/scrapes are unlikely to be attractive to Brent because fields smaller than 5ha are considered poor for use as an AFA (BGMP para 3.2; Vickery and Gill, 1999). Also an irregular shaped refuge is not inline with being suitable as an AFA which aim to reduce the edge effect by using square or circular shaped feeding areas (Vickery and Gill, 1999; Solent Waders and Brent Goose Strategy 2010**, part 4, table 3).

Foraging potential lies in field 9029 which is 6.75ha of cultivatable land, the rest being a strip of rank wetland along its north-west boundary adjacent to the Rife (attachment1 and attachment2). This field is also a better shape for an AFA. Sight lines to the north-east are to be opened up with proposed boundary vegetation removal although not along the whole length of the north-east boundary. This is due to a turn in the Rife and also possibly the trees at the north-west end of this boundary. As such, according to the BGMP, perhaps half of the north-east boundary could be opened up for sight lines. The next field to the north-east of 9029 is field 1141 which as well as being small for an AFA at 4.32ha also appears to be the most poorly draining, losing more than 16% of its potential foraging area to waterlogging (attachment3). Nonetheless, with the above boundary work these two fields, 9029 and 1141, comprise a total larger area of 11.07ha. As can be seen (attachment1) when combined the boundaries of these two fields are convoluted leading to a poor shape (Vickery and Gill, 1999; Solent Waders and Brent Goose Strategy 2010**, part 4 table 3) and this problem is enhanced by the boundary incursion on the north-west side due to the above Rife topography and trees. Hence, the addition of 1141, being offset to the east, small and of poor quality, would make little difference to the overall attractiveness of field 9029. The two narrow arable areas of field 9309 to the south does not alleviate this edge effect.

Brent counts were conducted on the mitigation fields from 02/11/2018 to 28/02/2019 when planted with winter cereals. There are 53 days of recorded counts resulting in 51 days with a count of zero (Sussex Ornithology Society, 2019 Appx 3). It is understood another count is being conducted winter 2019/20.

4. It is probably an over simplification to assume that planting grassland instead of other crops will make this particular mitigation land a suitable alternative feeding area (AFA) for Brent Geese. Research indicates that other factors are also at play not least of which is whether Brent will actually gather on the land. Size and shape are, amongst other factors, critical in the success or otherwise of an AFA (BGMP para 3.2; Vickery and Gill, 1999; Solent Waders and Brent Goose Strategy 2010**, part 4 table 3). Attractive grassland of the best foraging capacity relies not just on the quality of the land but, to a certain extent, on applications of either organic or inorganic fertilizer (Riddington et al., 1997; Vickery and Gill, 1999) which for this area, quite correctly, is not proposed.

5. Brent counts for the mitigation land winter 2018/19 are extremely poor, nevertheless, as far as size and shape are concerned field 9029 does have potential as an AFA. Out of 6.75ha this field only appears to have waterlogging crop damage in the region of 0.36ha (attachment3). In the event that Brent could be demonstrated to have started to use this field and if, for example, it was laid to grassland it could supply over half the foraging resource (3.2 above) which will be lost to P/140/16/OUT. There are other fields close to Pagham Harbour which could be attractive to Brent Geese (Sussex Ornithology Society, 2019 para 7.8) and which under a suitable land management plan could make up the remaining shortfall in foraging resource.

6. In its current form the BGMP may compromise Natural England's following attributes in its Supplementary Advice on Conservation Objectives for Pagham Harbour SPA (UK9012041);

Non-breeding population: abundance

Supporting habitat: extent and distribution of supporting habitat for the non-breeding season *

Supporting habitat: food availability*

(* specifically outside the site boundary)

It is incumbent on the authorities tasked with making decisions on the progress of application P/140/16/OUT to ensure that an effective mitigation plan is implemented which incorporates land that is appropriate as an alternative feeding area for Brent Geese.

Yours Sincerely,

Giles Binyon

Carlton Avenue, Bognor

Please email if you would like further documentation etc.

(** Solent Waders and Brent Goose Strategy, 2010; due to be updated 2019 but unavailable at time of writing)

References:-

The Brent Goose Mitigation Plan can be downloaded from Arun District Council's planning portal for application P/140/16/OUT

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Chichester Harbour Conservancy, Environment Agency, Hampshire & Isle of Wight Wildlife Trust, Hampshire Ornithological Society, Isle of Wight Council, Natural England, The Royal Society for the Protection of Birds. (2010). **Solent Waders and Brent Goose Strategy, 2010.**