Technical workshop to assess the ability of biodiversity offsetting to compensate for nightingale habitat loss at Lodge Hill, Kent

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1 Context

Residential housing proposals for Lodge Hill are central to the Medway Core Strategy, and thus progress on the strategy is reliant on any residual impact of the development on nightingales being compensated for (elsewhere). The Inspector of the Core Strategy wrote to Medway Council on 27 July noting "Natural England's view that it may be possible to mitigate the impact on nature conservation interests through the creation of compensatory habitat…." but concluding "I am not [yet] satisfied that there is convincing evidence before me to allow me to reach the conclusion that there is a reasonable prospect that adequate mitigation measures could be introduced to enable the development to proceed". The Inspector thus suspended the examination to allow further work to be undertaken to "**establish whether there is a reasonable prospect that adequate compensatory habitat could be established**".

To meet this request, Medway Council have set up a three-stage process – a technical workshop to seek evidence-based consensus on the Inspectors question, followed by site visits to apply the results of the technical workshop, followed by a formal public consultation. A summary report of the technical workshop together with, if appropriate, site surveys of potential offset sites, would form the material for the stakeholder workshop, which is scheduled for mid October. The rest of this paper considers only the first of the three stages - the technical workshop.

Medway Council have asked The Environment Bank Limited (EBL) – independent technical experts in biodiversity offsetting - to facilitate the technical workshop. The Environment Bank has separately and further asked The British Trust for Ornithology (BTO) – independent ornithological experts that collect, collate and hold the key national datasets on bird distribution and abundance - to support the workshop process.

Biodiversity offsetting is a Government policy launched in the Natural Environment White Paper of 2011. Offsetting is a mechanism to calculate residual environmental impact in one place (after avoiding and mitigating impacts on-site as far as possible) and then compensating for those residual impacts by delivering environmental gain (usually through habitat creation or restoration) elsewhere. The aim of biodiversity offsetting is a net gain in biodiversity. Where it works, it will be a key mechanism for enabling sustainable development – development that delivers both economic and ecological recovery.

Offsetting is being trialled in England at the moment with a set of nationally agreed Defra 'metrics' that lie at the heart of calculating both the impact of development and the gain of habitat creation. These metrics were used by The Environment Bank in our report an '*Independent assessment of the potential for biodiversity offsetting to compensate for nightingale habitat loss at Lodge Hill, Kent*'. We concluded that **there was indeed potential for offsetting to be effective at Lodge Hill**. However, there are some important caveats: firstly, a number of assumptions were made in that analysis to allow us to scope out different scenarios; secondly, the Defra metrics are designed for habitats not species so our analysis was habitat-based; and thirdly, many specific ecological characteristics of nightingales need to be factored into any habitat-based analysis of habitat creation. Having

agreed that there is potential for offsetting to work, we now need to assess whether it really could work at Lodge Hill – that is the purpose of this current phase in the work programme and the key objective of the technical workshop.

2 Technical workshop inputs

The technical workshop is scheduled for 25 September (tbc) and will be informed by three reports

- this report (prepared by the Environment Bank) on the key offsetting questions to be considered and agreed if consensus is to be achieved on the Inspectors question;
- a report summarising the key scientific/ornithological issues that arise when considering offsetting for nightingales, and the current evidence base to help us address those issues (to be prepared by the BTO, in consultation with stakeholders as necessary, by 18 Sept);
- a report summarising the availability of receptor sites, and other potential compensatory actions that could be taken, in the Hoo peninsula (prepared by GGKM and already issued to stakeholders).

3 Technical workshop key questions

The workshop seeks consensus on the Inspector's question: is there is a reasonable prospect that adequate compensatory habitat (for Lodge Hill) could be established? It may be helpful to deconstruct this question:

a) Can offsetting work for nightingales (in principle)?
b) Can offsetting work for nightingales (in principle) at Lodge Hill?
c) Is there 'a reasonable prospect that it could work' at Lodge Hill?

4 Can offsetting work for nightingales?

The Defra metrics for biodiversity offsetting were designed for habitats rather than species because it is simpler to trial this new policy without the complications of having to understand whether or not the habitat one is creating as compensation for developmental impact in another place is going to be used by a particular species or suite of species. That is, however, a challenge that must be addressed at Lodge Hill.

And even with habitats, there are some that are considered to be outwith the offsetting paradigm because creating replacement areas is too difficult or takes too long.

So, are there reasons why offsetting might be fundamentally inappropriate for nightingales per se? Species for which offsetting is unlikely to work are likely to be:

- Habitat specialists with extreme requirements that are difficult to predict/create (e.g. orchids that require mycorrhizal associations)
- Immobile species that cannot colonise new habitats and/or where habitats are now highly fragemented and isolated (e.g. some ground invertebrates)
- Species that require climax communities that take a very long time to create (e.g. ancient woodland or peatland specialists)
- Species which are highly site-faithful and 'choose' not to colonise new habitats even where they are apparently suitable and able to do so.

To inform this question it is important to examine any empirical evidence for habitat creation for nightingales working or not working? Does it always work, does it always fail? or are

there discernible and measurable characteristics of success and failure? Is it possible to assess the likelihood of colonisation of new potential habitat by nightingales if apparently suitable conditions can be provided?

The workshop should seek consensus on this question – if habitat creation is simply inappropriate for nightingales if, in other words, all nightingale habitat is 'irreplaceable', then there is little point in seeking to deploy it on the Hoo peninsula.

5 Can offsetting work for nightingales at Lodge Hill?

If habitat creation can work generally in principle for nightingales, is there any reason why it might not apply specifically at Lodge Hill? This is not a 'is there enough habitat in the Lodge Hill area?' question, but rather, 'are there characteristics of the Lodge Hill nightingale population that makes it inappropriate to offset in this area?'

- Are there specific or general characteristics for nightingales across their UK range that make some regions more or less amenable to habitat creation? e.g. is habitat creation likely to work best only at the core of the range (because there are more birds) or at the edge of their range (because there are more colonisers)? Do we have any evidence to suggest trends?
    - Do any of these specific or general characteristics apply to the Lodge Hill population?

6 Is there a reasonable prospect that offsetting would work at Lodge Hill?

So, without prejudice, if offsetting through habitat creation can work in principle for nightingales at Lodge Hill, is there a reasonable prospect that it *would* work? This question asks experts to reach consensus on 'whether there is a reasonable prospect that compensatory habitat can be found' – which seems to be a greater test than 'whether it could/might work' but a lesser test than 'is it guaranteed to work'.

To understand whether there is a reasonable prospect on whether (enough) compensatory habitat can be found, the technical workshop will need to explore the two key calculations of offsetting – how to estimate the environmental impact of the development on the Lodge Hill nightingales, and how to estimate the environmental gain delivered by habitat creation elsewhere.

Examples of these calculations were set out in The Environment Bank's preliminary report '*Independent assessment of the potential for biodiversity offsetting to compensate for nightingale habitat loss at Lodge Hill, Kent*'. That preliminary report sets out the broad principles of habitat-based offsetting and applied them to nightingale habitat, but the technical workshop will need to deliver a much better and deeper analysis of nightingale ecology to properly answer the Inspector's question. Nevertheless, the key issues remain calculating impact of development and calculating offset of creation.

6.1 Calculating the impact of development on the nightingales at Lodge Hill

In calculating impact one generally considers the type of habitat affected, its area and its condition (in this case 'condition' effectively needs to equate to 'habitat quality for

nightingales' and so the general indicators set out in the preliminary report may need refining). A development affecting a small area of low distinctiveness habitat in poor condition will require much less offsetting than one affecting large areas of high distinctiveness habitat in good condition. Thus, the technical workshop therefore needs to consider the following questions:

i. What are the habitat types important for nightingales at Lodge Hill?
ii. Do any habitats need to be assessed and offset independently (e.g. grassland, scrub, woodland) for their functional role in nightingale ecology, or can we pool all habitats together as 'nightingale habitat'?
iii. How do we assess 'habitat condition' for the Lodge Hill site? Can we assume that all habitat occupied by nightingales is in 'good condition' and all habitat not occupied is in 'poor condition'. Or is habitat not occupied by nightingales simply not 'nightingale habitat'? Should we assign condition based on structure and management, rather than whether birds are (known to be) present or not? Which leads us to consider…
iv. How to quantify 'nightingale habitat' – is it the habitat present at Lodge Hill which nightingales *could* use? or the habitat present which they do use? Over what time frame do we consider such habitat use? and does it correlate with habitat development? Or, is it a quantum of habitat based on the number of territorial pairs multiplied by the area needed by a territorial pair?
v. Then, how do we assess the impact of the development on that habitat? Is it direct impact (habitat loss) only? Is it also indirect impacts – how do we assess indirect impacts? Is it the impact on what is there at the site now?, or what could be at the site with future management?, or what would be at the site with future non-management? Is the impact assessed with or without the deployment of any future mitigation plans?

Answering these questions will allow us to estimate the number of 'nightingale units' that the development will impact at Lodge Hill and, therefore, how many 'nightingale units' need to be delivered through habitat creation in order to maximise the probability that there is no net loss of (nightingale) biodiversity.

6.2 Calculating the offsetting effects of habitat creation on the nightingales at Lodge Hill

In calculating the offsetting effects of habitat creation one considers the type of habitat being created, its area and its (target) condition (offsetting talks in terms of 'condition uplift' to describe what is currently poor habitat being managed to a better future state). Habitat creation delivering a small area of low distinctiveness habitat in poor condition will produce less offsetting units than one delivering large areas of high distinctiveness habitat in good condition.

Generally in biodiversity offsetting, habitat types can be 'traded up' (but never down), so that poor habitats can be offset by the creation of different better habitats e.g. the loss of arable farmland compensated for by the creation of chalk grassland (but never vice versa). Part of the Defra habitat metrics allow for conversion between habitat types. In this case however, we are considering only what habitat is good for nightingales, so there is no trading between habitats to complicate matters.

There are, however, further complicating factors when considering habitat creation:

- the location of habitat – there is no point creating large areas of fantastic quality habitat if it is in the wrong place. What constitutes the 'right' place is open to debate – for Defra offsetting metrics 'rightness' is usually signified by the habitat creation being part of spatial plan for habitat restoration, such as an NIA or Living Landscape, or as part of an ecological restoration scheme. In this case, the 'right' place will depend on what's considered best for the nightingales; do we know where this is?
- the temporal lag between creating the habitat on the ground and the habitat becoming functional, which in this case means being functionally available for the nightingales; in habitat terms temporal lags can be calculated and compensated for, but for the Lodge Hill nightingales 'temporal lag' in habitat availability may well be crucial, and unacceptable – there is no point in lots of good habitat becoming available in ten years time if there is none available now.
- the 'delivery' risk in creating habitat – some habitat is technically easy to create and it is predictable to do so, these habitats have low delivery risk; other habitats are technically difficult to create and/or unpredictable, these habitats have high delivery risk.

All of these risk factors are built into the Defra offsetting metric for habitats – the habitat-based calculations are shown in the EBL preliminary report. But we now need nightingale-specific metrics that will estimate the beneficial effects of the habitat creation for the birds. So, taking this into account, the technical workshop needs to consider the following questions:

vi. What type of habitat creation would offset the developmental impact at Lodge Hill?
vii. What metric should we use to calculate the effect of the offset? Type, area and condition of habitat, or number of pairs of birds?
viii. Are area multipliers for nightingale habitat linear? Is 100ha of habitat ten times better than 10ha? Is one 100ha block the same value of ten 10ha blocks?
ix. Is it useful to assign condition indices to habitat that is being created? Can we assume that all created habitat will (with an appropriate management plan) reach 'good' condition? Or will some habitat never be able to reach 'good' condition?
x. What habitat creation is in the 'right' or 'wrong' place? Do we know where the best place is to create habitat to offset impact – is it the closer (to Lodge Hill) the better?
xi. How important is the surrounding landscape and matrix for the habitat creation areas? Can we increase the value of the habitat creation by improving landscape management?
xii. When does the habitat created become functionally mature for nightingales? When does it become senescent? Does habitat management speed maturity and delay senescence? Is it valuable to stagger management across the landscape to create habitat blocks maturing at different times?
xiii. What are the technical risks and difficulties for nightingale habitat creation? Can these be mitigated?
xiv. Are techniques available to increase the probability of colonization and settlement of new habitat by nightingales?
xv. What management plans are required for nightingale habitat? Do we know enough to predict these or do we need adaptive management? What is the cost of long-term management? How do we secure in perpetuity management of these sites?

Answering these questions will allow us to estimate the number of 'nightingale units' that any habitat creation will deliver and, therefore, whether the number of 'nightingale units' needed for no net loss of (nightingale) biodiversity are available on the Hoo peninsula.

7 Summary

Biodiversity offsetting has the potential to effectively compensate for the residual impact of the Lodge Hill development on nightingales but there are many significant questions to be answered before we can state with confidence that 'there is a reasonable prospect that it could work' (and thereafter even more questions on long-term delivery of habitat creation at specific sites before we could state with confidence that it will work). Medway Council seeks scientific and technical consensus on as many issues as possible and that is the purpose of the technical workshop.

This report is intended to provide an outline of the proposed process for the technical workshop, and to provoke thought and analysis ahead of the workshop so that we are in a position to make as much progress as possible on the day. It is entirely feasible (indeed likely) that we have omitted some key issues, and we warmly welcome either comments on this report or suggestions for other topics that need to be covered. Please send any such comments, questions, or any other information which you feel it would useful to circulate ahead of the workshop to: tomtew@environmentbank.com.