ENVIRONMENTAL MONITORING FOR 2020

Background

Understanding the state of and trends in the environment is a key role for the Biodiversity Steering Group. The Government's 'Biodiversity 2020' strategy sets challenging targets for the conservation of habitats and species. To deliver against targets for the protection and enhancement of our remaining semi-natural habitats, we need to know where these habitats are, what condition they are in, how they are changing and whether or not current management is effective. In gathering this information, where it is feasible to do so, we need to ensure that the methods we adopt are in line with national thinking, as outlined in Natural England's 'Environmental Monitoring in Natural England 2012.' The evidence base provided by Local Records Centres is critical to support biodiversity delivery.

There are considerable challenges ahead if the Biodiversity 2020 strategy aims to halt overall biodiversity loss and establish coherent ecological networks are to be met. Defra has calculated that to deliver Biodiversity 2020 exclusively using current agri-environment arrangement, the costs are estimated to be at least £425million per year. Uncertainties over the extent and availability of agri-environment grants, the future direction of the farming industry and a rapid increase in recreational pressure mean that we cannot take for granted the continued survival of priority habitats and the full suite of species which they support. Defra are currently developing a resourcing strategy to help identify opportunities for diversifying and making best use of existing resource. Monitoring has an essential role in helping us to understand how the countryside is changing and what priority habitats are under threat.

Methodology for monitoring and surveillance of the marine environment is at an early development stage.

Work to date

The Isle of Wight Biodiversity Steering Group first met in September 1999 and set itself an initial task of carrying out an audit of all priority habitats and species found on the Island with a view to producing a series of habitat action plans and a limited number of species action plans where the species requirements were unlikely to be met simply by good habitat management.

The initial habitat audit aimed to map the extent of priority habitats on the Island but no assessment of condition was attempted. Generally speaking, the extent of priority habitats are contained within land notified as either a Site of Special Scientific Interest (SSSI) or a Site of Importance for Nature Conservation (SINC). The extent of priority habitats is held as a GIS layer which is regularly maintained as additional information and more rigorous mapping techniques become available.

The first assessment of habitat condition within statutory and non-statutory sites was carried out in 2010. This combined the results of condition assessment carried out by Natural England on SSSIs, with a student survey to identify evidence of management on all publicly accessible SINCs. This assessment, albeit somewhat rudimentary, provides our baseline of BAP priority habitat condition.

Habitats

At our original assessment, biodiversity targets for maintenance, restoration and re-creation of priority habitats were set, apart from wetland habitats as our mapping of these habitat types was insufficient at this time. This has since been rectified and, targets for wetland habitats have been set. Marine habitats still lack targets and we are still some way off this. Positive management of marine habitats is far more challenging than on land and, as a result, much of the work nationally is targeted at preventing harmful activities from human activities. To develop targets, we will need to work with neighbouring coastal authorities.

Habitat Extent

Mapping the extent of priority habitats is an on going task and data sets are continually being refined. Since the original mapping prior to 2000, habitat definitions have been revised and refined, and this has lead to adjustments in the reported area of habitats. Use of the OS Mastermap framework has allowed the elimination of overlaps between polygons and this, together with development of the Habitat and Land Use tool (HLU), is enabling more accurate and informative datasets to be developed.

Some of the habitat mapping has been done using aerial photography and information from environmental grant schemes, and may not be fully up-to-date. The most cost effective means to improve the quality of the data held is to work with land managers to 'quality control' the data with respect to both accurate mapping of habitat extent and current management. Work is at an advanced stage with respect to Isle of Wight Council countryside holdings. Working with biodiversity partners (eg National Trust, Forestry Commission, Hampshire & Isle of Wight Wildlife Trust and RSPB) to provide up to date information on extent and management of priority habitat on their land holdings would provide valuable and accurate on-going information. However, this land is largely SSSI rather than SINC.

- **Action: Priority High. Work with key biodiversity partners to refine habitat data sets. (LRC)**

Once these data have been revised they could be kept up to date by means of an annual review and would be an accurate data set for reporting change.

It will be considerably more difficult and costly to obtain this information from private landowners. SSSI condition assessments and stewardship returns may help us to form some sort of picture of land management. It would be possible to supply maps which reflect our current understanding of habitat distribution to Natural England to coincide with their condition assessments, and for their assessments to be returned, to be incorporated in the

system. However, these data may be of lower quality unless appropriate ground truthing has occurred and precise habitat definitions are consistently applied.

For the future, advances in remote sensing, aerial photography and LIDAR may make it easier and more cost effective to map habitats and their condition.

Habitat Condition

As a generalisation, the habitat condition assessment in 2010 concluded that habitats were largely in favourable or favourable recovering condition. The drivers to carry out this assessment were the SSSI condition assessment and the NI197 requirement on local authorities to report on condition of wildlife sites (SINCs). However these annual reporting requirements are no longer considered essential, so on-going habitat monitoring is unlikely to occur. Moreover, for SINCs, the only parameter measured was evidence for management which does not, in itself, necessarily imply favourable or favourable recovering condition.

Using a student to carry out an assessment of evidence of management on publicly accessible SINCs is a relatively inexpensive exercise. The Wildlife Trust believes that it should be possible to find a student to carry out this exercise in 2014/15. However, we would need to factor in the additional costs for assessment, plotting and analysis of data. This work was previously absorbed by the IW Council. With reduced capacity, this is no longer possible unless costed in as additional work.

Ideally we should repeat the SINC survey, using consistent methodology, at five year intervals if possible or at worse, at no less than ten year intervals. This will provide basic information as to whether or not sites are being managed and the fixed point photography will also yield additional information. There may be additional information which the surveyor could reasonably be requested to collect which would add value to the data, and the production of habitat maps for sites might be a useful aid to survey.

- **Action: Priority Medium. Carry out repeat SINC review at ideally five year intervals (or at least not greater than ten year intervals) using the same methodology as previously. This will require funding, to support the student to carry out the field work and to populate a database which can be imported into Arch for analysis. (HIWWT)**

There are drawbacks to this approach. Data from FEPS and SSSI condition review, although helpful, is not considered to be of consistent quality and needs to be treated with caution. In addition, there will be no data available on land use change, such as destroyed areas (eg permanent grassland re-creation on chalk). Also, land in recreation schemes may take many years to achieve the target habitat, if at all.

There is, in addition, a case for employing a qualified ecologist to look in greater depth at a targeted selection of sites to provide further information on priority habitat quality in both SSSIs and SINCs. However, this would be a much more costly exercise. The data gathered should be IHS compatible. Experience from elsewhere in the country indicate that the proportion on non-SSSI priority habitat in favourable condition is typically very low and, as with SSSI experience, most progress will be through getting habitat into ‘recovering’ condition rather than ‘favourable’. The Island is unlikely to be radically different in this respect.

- **Action: Priority Medium. Explore funding opportunities to employ a qualified ecologist to assess habitat quality following Common Standards Monitoring on a random selection of priority habitat types over the review period. (all)**

Habitat Surveillance Programme

Natural England staff already carry out, or commission, survey work to monitor the condition of terrestrial habitats on Sites of Special Scientific Interest (SSSIs) and on land under Higher Level Stewardship (HLS) agreements through the integrated Sites Assessment (ISA) programme. Natural England is intending to establish a Habitat Surveillance Programme using an England-wide network of reference sites across all Natural Character Areas (NCAs), which would be representative of both broad and priority habitat types.

In the longer term, Natural England would like to combine the evolving structured habitat surveillance framework more closely with similar approaches being trialled for structured species surveillance. The objective would be to establish a comprehensive programme of monitoring for priority species and habitats targeted against a common network of sample / reference sites (both within and outside of statutory sites) grouped by broad habitat. If species and habitat surveillance can take place as far as possible on the same sites, this will provide valuable information on whether the habitats are structurally diverse enough to support the characteristic fauna we would expect to thrive within them. To achieve these objectives, Natural England envisages working closely with national voluntary recording schemes and local record centres to establish and support these networks.

- **Action: Priority High. Work with volunteers and rangers / wardens to explore opportunities for on-going site monitoring to inform Biodiversity 2020. (LRC)**

Species

Species records are collated and maintained by the Isle of Wight Natural History & Archaeological Society and, via a data exchange agreement, form part of the Local Record Centre's holdings. A database of national and local priority species occurring on the Isle of Wight was set up in 2000 and is maintained to take account of new local information and national guidance. A partial species review was carried out in 2007/8 to assess how a restricted number of flagship species were faring, as a contribution towards our ten year review of biodiversity achievements on the Island.

Species are at the heart of 'Biodiversity 2020' and are ultimately the litmus test for its success. 'Biodiversity 2020' makes it clear that the greatest priority will be given to species at most risk of extinction, and those for which England has a particular international responsibility. Natural England has identified a suite of national priority species for which Isle of Wight is within their core area (see attached document). However, as required by Section 41 of The Natural Environment & Rural Communities (NERC) Act, 2006, Natural England has issued a list of *Habitats and species of principal importance in England*, which supersedes the earlier BAP Priority Sepecies lists. The Strategy says that "We will work with a range of public bodies and authorities to encourage community action, including supporting communities in 'adopting' locally relevant species." The approach to halt overall biodiversity loss is, without doubt, challenging, not least in light of the 'State of Nature' report (May 2013) which has, as it's

banner headline, some 60% of species nationally have declined over the last 50 years and 31% have declined strongly. Our aim for the Island should be to maintain viable populations of all LBAP species on the Island. That does not mean safeguarding all populations of all species. There are many species that have suffered a contraction of their range locally but which still maintain good viable populations on secure sites.

A partial species review was carried out in 2007/8 and, unsurprisingly, showed a mixed bag of successes and failures, where we had sufficient information to make a judgement. We believed that 22% of species had declined within the past ten years. However, there were also a very large number of species (48%) for which there was insufficient information to judge their status and trends locally. These 'data-deficient' species fall into this category for a number of reasons:

- They are very rare and difficult to find
- They require specialists to confirm their identity
- Quite a number are soft cliff specialists, a difficult habitat to survey and subject to constant change; the records we have, originated from specially commissioned surveys

It should be noted that the current conservation status of most terrestrial invertebrates is urgently in need of review and some groups are currently undergoing this review. Therefore, the national status of many national BAP and LBAP invertebrates is likely to change over time as they become better studied. The trend for many Nationally Scarce species is for their conservation status to be downgraded.

For all these reasons, it would impractical to carry out a full species review. However, it would be feasible to highlight some significant patterns where there is sufficient data to form a judgement. These could be categorised under six headings:

- Extinct species, which are believed to have been lost as resident species within the past twenty years. This list could include Corn bunting, Pearl-bordered Fritillary, Small Pearl-bordered Fritillary, Duke of Burgundy and Corn Buttercup. There has been sufficient local recording activity in appropriate locations to be able to reach these conclusions. These are also species which the 'State of Nature' report recognises are declining nationally.
- Vulnerable species, which are considered to be at risk. These are species which, on current evidence, are not performing well. Vulnerable species must fulfil the following criteria – a rapid, catastrophic decline over the past 20 years; a very restricted distribution (ie. a small handful of sites); and a dependence upon targeted (rather than landscape scale) management. This list could include Reddish Buff moth, Pillwort, Juniper, Greater Butterfly Orchid, Foxtail Stonewort and the leafy liverwort, *Marchesinia mackaii*. Many of these will be species which the 'State of Nature' report recognises are declining nationally.
- Successful species, which evidence suggests are currently doing well (for a variety of reasons), sometimes against national trends. This list could include Red Squirrel, Dormouse, Grey Long-eared Bat, Barn Owl, the 'scrambled-egg lichen *Fulgensia fulgens* lichen and the peacock's tail seaweed *Padina pavonica*.
- Data- deficient species which are also nationally important (ie nationally rare or protected species) for which we have no current information to assess their status. This short list could include the Desmoulin's whorl snail *Vertigo moulinsiana*, the leafy liverwort *Southbya nigrella* and the Brown Hairstreak butterfly.

- At risk species. These are species which, although currently stable, could be at risk in the future, where we have good evidence to make this predication. This list could include Red Squirrel (in the event of a successful Grey Squirrel introduction); Wood Calamint (sustainable population not yet established) and Ash dependent lichens (potentially at risk in the event of a catastrophic event of Ash Dieback, *Chalara fraxinea*).
- Climate change indicator species. Should we highlight climate change / sea level rise indicator species where these have the potential to provide particularly useful information? This may prove difficult to do, but for some species there may be a broadening of their ecological niche with climatic change. This list could include Dartford warbler (vulnerable to poor winters?), Slender Hare's-ear (vulnerable to sea-level rise), Glanville Fritillary (possibly an indicator of increased coastal erosion), Golden eyes lichen *Teloschistes chrysopthalma* (a natural colonist arriving from the Continent), and perhaps some invertebrates and weedy plants thriving on dry, disturbed ground.

Natural England has identified national priority species for which thwe Isle of Wight is considered to hold core populations (Appendix 1).

Several actions arise from this approach, the first of which is to identify a key list of priority species within the six categories defined above. Leading on from this will be series of targeted species-specific actions.

- **Action: Priority High. Construct a list of key species falling within the categories described above. (all)**

- **Action: Priority Medium/High. Develop a series of species-specific projects, engaging volunteers, which would be deliverable for priority species that would benefit from targeted action on the ground. (all)**

In conclusion

For the first time, we have a baseline survey of BAP priority habitat extent and condition dated to 2010. This provides a valuable starting point against which to measure change but there are a number of challenges to overcome if we are to achieve this.
We have the ability to provide a partial assessment of how national and local priority BAP species have fared over the last ten years (actually 2000-2013) for those species for which data is available. This should provide a basis from which to draw up a list of species which could benefit from targeted conservation action.

In order to contribute towards the Biodiversity 2020 challenge, our priorities as a group should be those highlighted above.

CRP 23rd July 2013

REFERENCES

DEFRA (2012) *Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services.* Defra *https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services*

Isle of Wight Biodiversity Partnership (August 2009) *Biodiversity. Celebrating 10 years of local action.* Wild on Wight http://www.wildonwight.co.uk/

Natural England (2013) *Environmental Monitoring in Natural England 2012.* Natural England, NE408 http://publications.naturalengland.org.uk/publication/6278902

Natural England (2013) *Habitats and species of principal importance in England.* *http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx*

Anon (2013) *State of Nature* report *2013.* http://www.rspb.org.uk/Images/stateofnature_tcm9-345839.pdf

APPENDIX 1

NATIONAL PRIORITY SPECIES FOR WHICH THE ISLE OF WIGHT IS A CORE AREA

Source: Natural England National Character Areas (NCAs) Terrestrial Biodiversity Group 2013

Mammals

Red Squirrel
Bechstein's Bat

Invertebrates

Acosmetia caliginosa	Reddish Buff
Anostirus castaneus	Chestnut Coloured Click Beetle
Coleophora vibicella	Large Gold Case-bearer
Cylindera germainica	Cliff Tiger Beetle
Gryllus campestris[1]	Field Cricket
Lasioglossum angusticeps	A Solitary Bee
Odynerus melanocephalus	Black-headed Mason Wasp
Osmia xanthomelana[2]	Large Mason Bee
Trachysphaera lobata	Sand Pill-millipede

Vascular Plants

Clinopodium menthifolium	Wood Calamint

Gentianella anglica	Early Gentian
Orobanche picridis	Ox-tongue Broomrape

Medium priority species

Great Crested Newt

Adder

Water Vole (alert layer)

Notes

Dormouse – IW is a core area but not a priority for conservation.

Gryllus campestris[1] – This refers to a reintroduced population on land owned by the Wildlife Trust.

Osmia xanthomelana[2] – The population, which occurred on National Trust land, is considered to have become extinct.