**GUIDANCE ON BIODIVERSITY ENHANCEMENT IN THE BRECON BEACONS NATIONAL PARK**

**Ideas for accommodating enhancements and appropriate habitat management into development sites**

**May 2022**

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| **HABITAT BIODIVERSITY ENHANCEMENTS** | |
| **Habitat type** | **Enhancement suggestions** |
| **Waterways/water bodies** | * Create new water bodies (e.g. ponds, scrapes and semi-permanent water bodies). * Creation of suitable otter and amphibian habitat including the installation of otter holts and the retention and buffering of riparian corridor. * Enhance streambanks and river corridors through planting native plant species and excluding grazing livestock. * Plant native pond plant species. * Do not use non-native plant species to avoid the impact of Invasive Non-Native Species (INNS) spread. More information at: <https://www.beacons-npa.gov.uk/environment/understandbiod/invasive-species-project-invaders-of-the-national-park/> * Pond plants are naturally very good colonisers - in some situations it may be best to allow natural colonisation to take place. * More information at: <https://freshwaterhabitats.org.uk/> |
| **Buildings or other structures** | * Erect bat boxes and install bat bricks/tubes and bat lofts. * Erect bird boxes. * Install barn owl boxes. * Create green roofs - preferably wild-flower and not non-native Sedum species |
| **Grassland** | * Extend area of wildflower meadow, coastal grassland or wetland scrapes for wading birds and access to mud for nesting swallows and house martins. * Create green roofs - wild-flower and grasses, not non-native *Sedum* species. * Appropriate management – cut grass in early spring and then not until late summer. Remove all arisings. |
| **Hedgerows and hedge banks** | * Improve connectivity for wildlife by connecting new to existing and repair damaged sections of existing features/habitats. * Manage hedgerows sympathetically to avoid over management (excessive cutting back), or neglect (this allows the hedge to become gappy, affecting connectivity and reducing its biodiversity value if it becomes tall and unstable). * Plant native hedgerow species, using a minimum of 5 species (including berry or seed-bearing species). A list of native species can be found in **Appendix 5 of the LDP**. * Cut or trim hedges at the end of winter - allows refuge, movement corridors and food sources for overwintering birds. |
| **Woodlands** | * Manage existing woodland for biodiversity, by reducing the levels of grazing animals and introducing management techniques such as coppicing, where appropriate. * Create buffers for woodland edges. * Expand the amount of woodland and improve woodland connectivity by planting native tree and shrub species in suitable areas (see **Appendix 5 of the LDP**). * Improve woodland biodiversity by installing dormouse, bird and bat boxes. |
| **Orchards** | * Reinstate or create new traditional orchards. * Retain dead wood where possible (standing or fallen). * Source local varieties of fruit trees. More information at: <https://ptes.org/campaigns/traditional-orchard-project/fruit-heritage/> |
| **Heathland** | * Develop and implement appropriate management regimes for existing heathland. * Extend existing heathland areas using approved techniques. More advice is available from Gwent Wildlife Trust (see below) |
| **Urban** | * Plant native trees and hedgerow shrubs to provide food and shelter for birds and small mammals. * Encourage pollinating insects by planting native wildflower seed mixes. * Install bat and bird boxes (see species enhancements). * Maintain and enhance areas of semi-natural habitat (such as grassland, hedgerows, wooded areas and water bodies). |
| **General habitat management advice** | * Habitat management advice toolkits are available from the Gwent Wildlife Trust: <https://www.gwentwildlife.org/habitat-management-advice> * This includes advice on grasslands, heathland, woodland, hedgerows and freshwater habitats. |

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| **SPECIES BIODIVERSITY ENHANCEMENTS** | | |
|  | **Species** | **Enhancement suggestions** |
| **Birds** |  | * Recommended material for boxes - woodcrete for longevity or FSC certified wood – cheap, soft woods (such as birch) will not last long. * More information at the British Trust for Ornithology and RSPB:   <https://www.bto.org/our-science/publications/bto-books-and-guides/nestboxes-your-complete-guide>  <https://www.rspb.org.uk/birds-and-wildlife/advice/how-you-can-help-birds/> |
|  | Blue tits and great tits | * Installation of small boxes at above 3 metres above ground facing north or north-east. Can be attached onto small buildings or onto tree trunks. * Not to be erected too closely together to avoid territorial conflicts. * Nest box locations to be free from hanging vegetation to allow for easy access and watch-out for predators. |
|  | Robins and wrens | * Installation of open fronted boxes at 2-3 metres above ground on tree trunks or walls. * Front entrance to be hidden behind vegetation. |
|  | House sparrows | * Installation of boxes at 2 metres in height (or higher) in close proximity to foraging space at soffit/eaves level. * Easterly aspect and ideally in clusters of up to 6 (or more) due to them preferring to nest in loose colonies. It is less likely that individual boxes will attract a breeding pair. * Also available as sparrow terraces. |
|  | Swallows | * Installation of nest sites in close proximity to source of mud for nest building. * Sites to include houses, barns, stables and car ports. * Nest cups to be installed inside buildings with open access for nesting between spring and summer. * Multiple nest sites can be erected, although not too close together (>1m) to avoid nest conflicts. * Avoid installation where droppings may be a nuisance or where predators (such as cats) may be present. * Install a simple shelf below where the droppings can collect. |
|  | House martins | * Installation of nest sites in close proximity to source of mud for nest building. * Host sites for nest cups to include buildings with wide soffits in close proximity to green infrastructure (rivers, ponds, trees, hedgerows) approximately 5 metres above ground away from windows and doors. * Nest sites require shelter from prevailing weather. * Multiple nest cups can be installed in clusters as they are a colonial species. |
|  | Swifts | * Nest boxes/bricks to be installed with a northerly aspect at external eaves/soffits level above 5 metres in height and with an unobstructed flight path. * Can be installed in close proximity to others due to being a colonial bird species. * More information found at Swift Conservation: <https://www.swift-conservation.org/> |
|  | Dippers and grey wagtails | * Open-fronted boxes to be sited next to watercourses. * Built into bank or under bridges. |
|  | Tawny owl | * Installation of large box on large and mature tree in woodlands in close proximity to suitable foraging habitat. |
|  | Barn owl | * Large box to be installed in strong and mature tree or inside open sided barns at a height of above 3 metres. * In trees, where the nest box access hole would be visible to a passing owl. * Boxes in buildings to be placed out of the sight of human activity. * Close to areas of rough grassland. * To be placed 1km in distance away from main roads. * More information found at: <https://www.barnowltrust.org.uk/barn-owl-nestbox/barn-owl-nestboxes/> |
|  | Little owl | * Box to be installed in trees resting on branches, in open-sided buildings or on a wall in open farmland with hedgerows and scattered trees. The young need this feature to walk along. * Minimum height for box installation – 3 metres. |
| **Invertebrates** |  | * Installation of insect boxes (bug hotels). * Install bee bricks into developments at 1 per two houses. * Plant tree and hedgerow species that are early blossoming; for example, hawthorn and blackthorn. * Provide shallow margins around ponds. * Retain deadwood habitats where possible. |
| **Reptiles** |  | * Creation of hibernacula and log piles. * Creation of south facing slopes for basking. * Retain and create undisturbed area of habitat and basking areas of bare ground on south facing slopes. * Creation of wetland area for grass snakes. |
| **Amphibians** |  | * Create accessible ponds with some marginal shading which are positioned to avoid human or animal disturbance. * Retain/create habitat mosaic around ponds. * If more than one pond is being created, dig wide interconnecting ditches. |
| **Mammals** | Dormice | * Maintain traditional hedgerow management. * Erect dormouse boxes. * Retain linking habitats, e.g. woodlands and hedgerows. |
| Hedgehogs | * Create holes in garden fences to allow hedgehogs to pass through and evade predators. * Maintain hedgerow corridors. * Create hibernation habitat such as log piles and scrub areas. |
| Otters | * Retain undisturbed habitat by rivers by installing wide buffers to developments. * Establishment of wet woodland. * Remove barriers to passage, e.g. culverts. Include ledges on bridge designs. * Creation of otter holts. |
| Bats (general) | * Incorporate bat lofts into building conversions. Recommended material – Bituminous roofing felt (not breathable membranes containing polypropylene filaments). * Create or retain access points into roof void(s) and cavity walls. * Erect bat boxes (x1 or 2 per dwelling) onto buildings or build in bat tubes/bat bricks on new extensions/dwellings. * Install boxes next to hedges or trees. * Retain existing trees, hedgerow corridors and mature trees. * Design dark corridors into site plans and incorporate lighting plans into applications. * Sensitive lighting to use low level LED lights and low visibility splay. Lights to be on a timer switch or motion sensor operated. * Boxes to be made from woodcrete or FSC certified wood – cheap, soft woods will not last long. * Boxes on trees to be positioned at least 4 metres high, in groups of three and facing in a south-easterly to south-westerly direction to provide a range of suitable temperatures. * Roost material should be rough in texture, non-toxic and non-corrosive. * More information from the Bat Conservation Trust at: <https://www.bats.org.uk/> |
| ***Roof void dwelling bats*** | Serotines, Leisler’s and Daubenton’s bats | * Install access points under eaves or create artificial access holes in roof tiles. * Entry height – 2-7m above ground level. * Keep artificial lighting to an absolute minimum near access and flight-lines. * Maintenance of boundary features to provide cover, food source and flight paths. * Summer nursery roosts aspect - south or west facing roof. * Male roosts and hibernation roosts aspect – north facing. * Roost material should be rough in texture, non-toxic and non-corrosive. Recommended material – Bituminous roofing felt not containing polypropylene filaments. |
| ***Bats requiring flight space*** | Natterer’s, Brown long-eared bats | * Height of entry – above 2 metres. * Roosting/nesting dimensions of un-trussed roof space to be 2-2.8m high X 5m wide X 5m length. * Maintenance of boundary features for cover, food source and flight paths. * Roost material should be rough in texture, non-toxic and non-corrosive. Recommended material – Bituminous roofing felt not containing polypropylene filaments. |
| Horseshoe bats (Lesser and greater) | * Roost material should be rough in texture, non-toxic and non-corrosive. Recommended material – Bituminous roofing felt, not containing polypropylene filaments. * Maintenance of linear features in the landscape, (hedgerows, watercourses etc.) to for navigation and foraging. * Design dark corridors into site plans and include lighting plans with applications. * Sensitive lighting schemes to use low level LED lights and minimise light spill. No lighting near access and flight-lines. Lights elsewhere to be on a timer switch or motion sensor. * Construction of bespoke bat houses. * Construction of night-roosting structures – design available from the Vincent Wildlife Trust at: <https://www.vwt.org.uk/wp-content/uploads/2015/04/lesser-horseshoe-night-roost-design.pdf> * Horseshoe bats need a larger access so that they can fly (instead of crawl) directly into the roost. As above, the roosting area should not be trussed / cluttered, to allow internal flight. * Optimum roof coverings include slate or dark tiles which absorb heat. * Installation of hot-boxes in roof cavities to provide still air conditions preventing draughts to keep these areas warm. * Installation of baffles outside entrance holes to prevent light spill. * More information from the Vincent Wildlife Trust: <https://www.vwt.org.uk/specie_category/bat/> |
| ***Crevice dwelling bats*** | Common pipistrelle, Soprano pipistrelle, Nathusius’ pipistrelle, Brandt’s and Whiskered bats | * Retain or create cavities in walls or cladding. * Entry height – 2-7m above ground level. * Install bat boxes into walls or under the eaves. * Roost material should be rough in texture, non-toxic and non-corrosive. Recommended material – Bituminous roofing felt not containing polypropylene filaments. * Maintenance of boundary features for cover, food source (insects) and flight paths. * Design dark corridors into site plans and include lighting plans with applications. * Sensitive lighting to use low level LED lights and minimise light spill. Lights to be on a timer switch or motion sensor. * Create gaps/holes/crevices of 20mm x 50mm in soffits/barge/weather boards to allow bats into batten gaps. Avoid sealing the top of the cavity walls to provide roosting sites. * Summer roosts will require a Southerly or Westerly aspect to maximise solar heat. * Male roosts and hibernation roosts aspect – North facing. |

Supplier of bug hotels and boxes for birds, bats and other mammals:

<https://www.nhbs.com/4/practical-conservation-equipment>

Some suppliers of native wildflower seeds and plug plants:

<https://shop.plantlife.org.uk/collections/wildflower-seeds>

<https://www.wildflower.co.uk/wildflower-plugs-and-plants/all-wildflower-plug-plants.html>

**OTHER SUPPLIERS ARE AVAILABLE**