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Biodiversity and Eco-Systems Duty – Forward Plan 2022 2025



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# Introduction

## Biodiversity Action Plans

The WWF defines biodiversity as “the variety of animals, plants, fungi and microorganisms that make up the natural world. Each species and organism working together in ecosystems to maintain balance and support life”. Biodiversity provides essential services needed for our survival, including flood mitigation, provision of clean water and air, pollination of crops and production of natural resources like coal and timber. The intrinsic value of biodiversity is not limited to lush meadows or rain forests, but extends to back gardens, former quarries, factory roof tops and almost any other space.

The continued promotion and protection of biodiversity is of paramount importance as it is under threat domestically and internationally. Anthropogenic activities are largely responsible for wide-scale decline in biodiversity. Land use changes, agricultural and woodland management practices, water and air pollution and intensification of development are just some of the ways we have negatively impacted global biodiversity.

## Legal Background and Requirements

The UK responded to the continued loss of global biodiversity by publishing the **UK Biodiversity Action Plan** in 1994. It set out a programme to conserve the UK’s biodiversity by creating a series of actions plans to help priority habitats and species.

A list of habitats and species of principle importance in Wales was set out under **Section 42 of the Natural Environment and Rural Communities Act (NERC) of 2006.**

In 2015, the Welsh Assembly published the **Nature Recovery Plan for Wales**. This identified how Wales was to deliver on commitments required by the UN’s Convention on Biological Diversity and the EU Biodiversity Strategy, which aimed to stop the biodiversity decline by 2020.

More recently the **Environment Act (Wales) 2016** was introduced. This Act reviewed and updated Section 42 of NERC and placed a duty on public bodies in Wales to ‘seek to maintain and enhance biodiversity’. Via the Biodiversity and Eco Systems Duty Plan.

The **Environment Bill 2020, Part 6: Nature and Biodiversity** makes amendments to **Section 40 of NERC**. It explicitly sets the requirement of public bodies to assess how they can take action to enhance and conserve biodiversity, and to then take these actions.

## UWTSD Biodiversity Action Plan: Scope and Goals

At the University of Wales Trinity St David, we understand the environmental impact of our activities and aim to tackle and mitigate any negative impacts and achieve biodiversity net gain. As such, we have implemented our 2022 – 2025 Biodiversity and Eco-Systems Action Plan. The Plan also seeks to fulfil the requirements of the Environment Act (Wales) 2016, Part 6 of the Environment Bill 2020 and to work towards the ‘Resilient Wales’ goal set within the Well-being of Future Generations (Wales) Act 2015.

This plan and Environmental Management System are in place to help us achieve this. The scope of these documents covers all of UWTSD’ Welsh campuses; in Swansea, Lampeter, Cardiff and Carmarthen.

We are committed to not only maximising the ecological value of habitats already present on our campuses, while retaining their functional value, but also increasing the amount of green space present on campus. Aside from environmental improvements, we hope that the actions of our BAP will provide positive physical and mental benefits to our staff and students.

This Biodiversity Action Plan is a live, working document and will be subject to review at least every four years. The BAP does not focus on specific habitat or species action plans, but instead focuses on four broader goals, which in turn encompass specific plans. The goals cover:

1. Management and Reporting
2. Survey, Monitoring and Data Management
3. Habitat and Species Management
4. Engagement, Awareness Raising and Education

Specific actions designed to achieve these goals have been outlined in the Action Plan section this document, along with timelines for their completion and their lead contact.

## Biodiversity on Campuses and Local Council Biodiversity Plans

University of Wales Trinity St David is already seeking to improve our environmental performance in the areas of waste, energy and transport through our Environmental Management System. We are extending our improvements to biodiversity gains through our BAP. This will provide clear physical environmental improvements, but also considerably more benefits. According to the Environmental Association for Universities and Colleges, universities with an active biodiversity agenda can expect to see:

* Improved reputation and green image
* Potential to develop partnerships between staff and students
* Opportunities for education and curriculum greening
* Campus contribution to healthy living and wellbeing
* Enhanced volunteering opportunities for students
* Greater support from local authorities for planning and new development
* Cost savings in maintenance
* Legislative compliance
* Wider benefits in terms of flood and carbon reduction

The University is unique in that each campus setting is different from the others; this offers many opportunities to pursue a variety of initiatives throughout Wales without being limited by a single landscape. The University is set across five campuses, ranging from city centre sites to rural locations. This scope of this Biodiversity Action Plan covers our three Welsh campuses. Across these locations the University is attended by approximately 11000 students and employs more than 2000 members of staff.

The Swansea campus is in an urban location and is relatively poor from a conservation perspective, consisting of a mosaic of buildings and bare ground interspersed with highly managed amenity grasslands, beds of cultivated introduced shrub and ephemeral perennials and individual trees. This highlights the possibility for substantial enhancement opportunities. As the Waterfront IQ campus is situated in an exposed costal location, there has been difficulty in the past establishing and supporting the growth of plant species. As such, hardy plants well suited to coastal environments should be selected for planting.

The Lampeter and Carmarthen campuses offer more scope for biodiversity improvement than Swansea campus, as they have a richer diversity of habitats. Both contain large areas of amenity grassland as well as poor semi-improved grassland. The Lampeter campus specifically is of conservation importance owing to an estuary of the Teifi River flowing though it which is a designated Special Area of Conservation (SAC) and a Site of Specific Scientific Interest (SSSI) As such particular care must be taken with any biodiversity developments, ensuring no invasive species are introduced and the site is not damaged. The SAC is designated due to its emergent vegetation that is often dominated by Stream Water-crowfoot *Ranunculus penicillatus* subsp. *Penicillatus*; and protected species that are found within this habitat that includes Bullhead *Cottus gobio*, River lamprey *Lampetra fluviatilis*, Brook lamprey *Lampetra planeri*, Sea Lamprey *Petromyzon marinus*, Atlantic Salmon *Salmo salar*, Otter *Lutra lutra* and Floating Water-plantain *Luronium natans*. Our Lampeter campus has introduced bee hives in October 2021, to enhance natural pollination and help conserve bee species.

## Carmarthenshire Biodiversity Action Plan

The Carmarthenshire BAP focuses on actions that are needed to meet the objectives for the habitats and species of principal importance as set out in Section 42 of the Countryside & Rights of Way Act 2000. These habitats and species need conserving and are part of what makes Carmarthenshire special and distinctive.

The Carmarthenshire Biodiversity Action Plan concentrates on nine groupings of habitats. These are, Woodland, Upland Habitats, Freshwater, Wetlands, Farmland, Lowland Grassland and Heathland, Brownfield/Urban, Coastal and Marine habitats and species. Species have been grouped in with habitats however a number of species are supported with individual action plans in order to positively manage the habitat or connect and expand where possible, there are; tree sparrow, water vole, bats, hedgehog, otter, dormouse, red squirrel, marsh fritillary and brown hairstreak butterflies, small-flowered catchfly, Deptford pink, barn owl (local priority), brown hare, little-ringed plover and amphibians and reptiles.

The Carmarthenshire Biodiversity Action Plan and their priority habitats will be considered throughout the development of our Biodiversity Action Plan.

## Ceredigion Local Biodiversity Action Plan

The Ceredigion LBAP was developed with the Ceredigion Biodiversity Partnership and is supported by the Countryside Council for Wales

The Plan provides the framework for local biodiversity action with an aim to contribute to delivery of national targets for key habitats and species. The species and habitats included within the plan comprise UK Priority Species (those defined as globally threatened or declining in the UK) and Species of Conservation Concern (defined as meeting one or more of the four criteria stated in the 1995 UK Steering Group Report).

Habitat and Species Action Plans were created as part of the LBAP, establishing conservation targets for conservation action, current status of the species/habitat and a ‘lead partner’ to take on implementation and review. The Habitat Action Plans cover upland mixed ashwoods, upland oak woods, wet woodland and roadside verges. The Species Action Plans cover black grouse *Lyrurus tetrix*, brown hare *Lepus europeaus*, chouch *Elymus repens* and hornet robberfly *Asilus crabroniformis*.

The Ceredigion Local Biodiversity Action Plan will be considered throughout the development of our Biodiversity Action Plan.

## Swansea Local Biodiversity Strategy and Action Plan

Swansea Council’s LBAP outlines the strategic actions needed to conserve both priority habitats and species and wider biodiversity. It aims to protect, manage, enhance and promote Swansea’s outstanding natural environment and natural beauty.

The Plan consists of 15 strategic objectives over five key themes:

1. Understanding the natural environment – *Audit*
2. Protecting and safeguarding the natural environment – *Plans, policies and legislation*
3. Managing and enhancing the natural environment
4. Understanding and appreciating the natural environment – *awareness raising and community involvement*
5. Finding the resources

The Swansea Local Biodiversity Strategy and Action Plan will be considered throughout the development of our Biodiversity Action Plan.

# Habitats and Species of Conservation Importance

The tables below were developed through a Phase 1 Habitat Survey carried out at all three campuses in September 2021. The habitats are included if they are in Section 7 of the Environment Act’s habitats and species of particular conservation concern in Wales, or if they provide important ecosystem services. Section 7 replaces section 42 from the NERC Act.

We do not currently have complete lists of all plants and animals using the campuses. Opportunities for increasing knowledge are and will be undertaken. Species-specific presence/absence surveys will be undertaken when the 2022 ecological survey season commences. This will allow species of conservation importance at each campus to be recorded, with subsequent conservation targets set.

The information in the tables below serves to highlight current biodiversity priorities and will be updated as new information is gained, allowing management to further improve. Good management practices can still be carried out with only preliminary information, including reducing pesticide/herbicide use, reducing frequency of grass cutting, allowing wild flowers to seed and controlling invasive species. Data for the habitats of conservation importance were obtained from Phase 1 Habitat surveys of each site. Data for the Swansea campus species of conservation importance were obtained from South East Wales Biodiversity Records Centre (SEWBReC). Data for the Lampeter and Carmarthen campuses were obtained from West Wales Biodiversity Information Centre (WWBIC)

## Swansea Campus

Table 1. Habitats of conservation importance at UWTSD Swansea Campus

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase 1 Habitat Type** | **S7 Priority Habitat?** | **Reason for Inclusion in BAP (if not S7)** | **Conservation Target** |
| A3.2 Parkland and Scattered Trees | **Yes** |  | **Maintain extent; improve quality; protect mature/veteran trees; relaxation in management in appropriate areas to develop species to flower and seed** |
| J1.2 Amenity Grassland | No | Potential for improvement; habitat provision for invertebrates, birds and small mammals; aids with drainage | **Maintain extent; improve quality; develop areas to manage as wild flower meadows/species-rich grasslands (can act as linking-habitat in built-up areas); allow areas of disturbed/bare ground for insects; sympathetic maintenance regimes; leave a margin of longer grassland alongside any features such as boundaries or ditches** |
| J1.3 Cultivated Ephemeral/Short Perennial | No | Potential for improvement; Habitat provision for invertebrates; feed pollinating insects | **Maintain extent; if increase extent try to use native species (although diversity of species/structure is of greater importance than nativeness; improve quality for use by pollinating insects** |
| J1.4 Cultivated Introduced Shrub | No | Potential for improvement; Habitat provision for invertebrates and birds; feed pollinating insects | **Maintain extent; if increase extent try to use native species; improve quality for use by pollinating insects; maintain/encourage uncultivated areas as habitat for small mammals, birds and insects** |
| J2.1 Species Poor Intact Hedge | **Yes** |  | **Maintain/Increase extent; improve quality; less rigorous management would encourage a dense hedge to develop, encouraging fruits, berries and seeds; encourage growth of tall vegetation along base of hedgerows** |
| J2.3 Hedgerow with Trees | **Yes** |  | **Maintain/Increase extent; improve quality; less rigorous management would encourage a dense hedge to develop, encouraging fruits, berries and seeds; encourage growth of tall vegetation along base of hedgerows** |
| J2.5 Wall | No | Support mosses, lichens and ferns; insect habitat | **Maintain extent; encourage climbing plants** |
| J3.6 Buildings | No | Potential habitat for bats and birds (possible S7 species) – roost/nest | **Improve quality; offer new habitats through green roofing, bat/bird boxes, insect bricks; environmentally-mindful development** |
| J4 Bare Grounds | No | Potential for improvement as offer little-to-no ecological interest; Basking habitat for small reptiles | **Maintain extent** |
| Individual Trees | No | Potential habitat for bats and birds (possible S7 species) – roost/nest | **Increase extent – improvement in habitat connectivity** |

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Table 2. S7 priority species recorded within 2km of UWTSD Swansea Campus (search area highlighted above)

|  |  |
| --- | --- |
| **Scientific Name** | **Common Name** |
| **Mammals** | |
| *Chiroptera* | Bats |
| *Erinaceus europaeus* | West European Hedgehog |
| *Lepus europaeus* | Brown Hare |
| *Lutra lutra* | European Otter |
| *Megaptera novaeangliae* | Humpback Whale |
| *Meles meles* | Eurasian Badger |
| *Mustela nivalis* | Weasel |
| *Myotis* | Unidentified Bat |
| *Nyctalus noctula* | Noctule Bat |
| *Phocoena phocoena* | Common Porpoise |
| *Pipistrellus* | Pipistrelle |
| *Pipistrellus pipistrellus* | Common Pipistrelle |
| *Pipistrellus pipistrellus* | Pipistrelle |
| *Pipistrellus pygmaeus* | Soprano Pipistrelle |
| *Plecotus auritus* | Brown Long-eared Bat |
| **Birds** | |
| *Acanthis cabaret* | Lesser Redpoll |
| *Alauda arvensis* | Eurasian Skylark |
| *Alcedo atthis* | Kingfisher |
| *Anthus trivialis* | Tree Pipit |
| *Aythya marila* | Scaup |
| *Cettia cetti* | Cetti's Warbler |
| *Charadrius alexandrinus* | Kentish Plover |
| *Charadrius dubius* | Little Ringed Plover |
| *Charadrius hiaticula* | Common Ringed Plover |
| *Chroicocephalus ridibundus* | Black-headed Gull |
| *Circus aeruginosus* | Western Marsh Harrier |
| *Circus cyaneus* | Hen Harrier |
| *Cuculus canorus* | Cuckoo |
| *Cygnus cygnus* | Whooper Swan |
| *Emberiza citrinella* | Yellowhammer |
| *Emberiza schoeniclus* | Common Reed Bunting |
| *Falco columbarius* | Merlin |
| *Falco peregrinus* | Peregrine |
| *Falco tinnunculus* | Kestrel |
| *Ficedula hypoleuca* | European Pied Flycatcher |
| *Gavia immer* | Common Loon |
| *Gavia stellata* | Red-throated Loon |
| *Hydrocoloeus minutus* | Little Gull |
| *Ichthyaetus melanocephalus* | Mediterranean Gull |
| *Larus argentatus* | European Herring Gull |
| *Limosa lapponica* | Bar-tailed Godwit |
| *Linaria cannabina* | Linnet |
| *Locustella naevia* | Grasshopper Warbler |
| *Loxia curvirostra* | Red Crossbill |
| *Melanitta nigra* | Common Scoter |
| *Milvus milvus* | Red Kite |
| *Muscicapa striata* | Spotted Flycatcher |
| *Numenius arquata* | Curlew |
| *Numenius phaeopus* | Eurasian Whimbrel |
| *Oceanodroma leucorhoa* | Leach's Storm Petrel |
| *Pandion haliaetus* | Western Osprey |
| *Panurus biarmicus* | Bearded Reedling |
| *Passer domesticus* | House Sparrow |
| *Passer montanus* | Tree Sparrow |
| *Perdix perdix* | Grey Partridge |
| *Phoenicurus ochruros* | Black Redstart |
| *Plectrophenax nivalis* | Snow Bunting |
| *Podiceps auritus* | Slavonian Grebe |
| *Poecile montanus* | Willow Tit |
| *Poecile palustris* | Marsh Tit |
| *Prunella modularis* | Dunnock |
| *Pyrrhula pyrrhula* | Eurasian Bullfinch |
| *Recurvirostra avosetta* | Avocet |
| *Regulus ignicapilla* | Common Firecrest |
| *Sternula albifrons* | Little Tern |
| *Sturnus vulgaris* | Starling |
| *Tringa ochropus* | Green Sandpiper |
| *Turdus iliacus* | Redwing |
| *Turdus philomelos* | Song Thrush |
| *Turdus pilaris* | Fieldfare |
| *Tyto alba* | Western Barn Owl |
| *Upupa epops* | Eurasian Hoopoe |
| *Vanellus vanellus* | Lapwing |
| **Reptiles and Amphibians** | |
| *Anguis fragilis* | Slow-worm |
| *Bufo bufo* | Common Toad |
| *Lissotriton helveticus* | Palmate Newt |
| *Lissotriton vulgaris* | Smooth Newt |
| *Natrix helvetica* | Grass Snake |
| *Rana temporaria* | Common Frog |
| *Triturus cristatus* | Great Crested Newt |
| *Vipera berus* | Adder |
| *Zootoca vivipara* | Common Lizard |
| **Invertebrates** | |
| *Acronicta psi* | Grey Dagger |
| *Acronicta rumicis* | Knot Grass |
| *Amphipoea oculea* | Ear Moth |
| *Amphipyra tragopoginis* | Mouse Moth |
| *Anania funebris* | White-spotted Sable |
| *Apamea remissa* | Dusky Brocade |
| *Arctia caja* | Garden Tiger |
| *Argynnis adippe* | High Brown Fritillary |
| *Asilus crabroniformis* | Hornet robberfly |
| *Boloria euphrosyne* | Pearl-bordered Fritillary |
| *Boloria selene* | Small Pearl-bordered Fritillary |
| *Bombus humilis* | Brown-banded Carder-bee |
| *Brachylomia viminalis* | Minor Shoulder-knot |
| *Caradrina morpheus* | Mottled Rustic |
| *Celaena haworthii* | Haworth's Minor |
| *Ceramica pisi* | Broom Moth |
| *Chiasmia clathrata* | Latticed Heath |
| *Cirrhia icteritia* | Sallow |
| *Coenonympha pamphilus* | Small Heath |
| *Cossus cossus* | Goat Moth |
| *Cupido minimus* | Small Blue |
| *Diarsia rubi* | Small Square-spot |
| *Donacia bicolora* | Two-tone Reed Beetle |
| *Ecliptopera silaceata* | Small Phoenix |
| *Ennomos quercinaria* | August Thorn |
| *Epirrhoe galiata* | Galium Carpet |
| *Erynnis tages* | Dingy Skipper |
| *Eugnorisma glareosa* | Autumnal Rustic |
| *Euphydryas aurinia* | Marsh Fritillary |
| *Euxoa nigricans* | Garden Dart |
| *Euxoa tritici* | Dusky Dart |
| *Helotropha leucostigma* | Crescent |
| *Hepialus humuli* | Ghost Moth |
| *Hipparchia semele* | Grayling |
| *Hoplodrina blanda* | Rustic |
| *Hydraecia micacea* | Rosy Rustic |
| *Lasiommata megera* | Wall |
| *Leucania comma* | Shoulder-striped Wainscot |
| *Litoligia literosa* | Rosy Minor |
| *Lycia hirtaria* | Brindled Beauty |
| *Malacosoma neustria* | Lackey |
| *Melanchra persicariae* | Dot Moth |
| *Melanthia procellata* | Pretty Chalk Carpet |
| *Orthosia gracilis* | Powdered Quaker |
| *Ostrea edulis* | Common Oyster |
| *Perizoma albulata* | Grass Rivulet |
| *Perizoma albulata albulata* | Grass Rivulet |
| *Satyrium w-album* | White-letter Hairstreak |
| *Scotopteryx chenopodiata* | Shaded Broad-bar |
| *Spilosoma lubricipeda* | White Ermine |
| *Spilosoma lutea* | Buff Ermine |
| *Tholera cespitis* | Hedge Rustic |
| *Tholera decimalis* | Feathered Gothic |
| *Timandra comae* | Blood-vein |
| *Tyria jacobaeae* | Cinnabar |
| *Watsonalla binaria* | Oak Hook-tip |
| *Xanthorhoe ferrugata* | Dark-barred Twin-spot Carpet |
| *Xestia agathina* | Heath Rustic |
| *Xestia castanea* | Neglected Rustic |
| *Xylena exsoleta* | Sword-grass |

A table listing the species of conservation importance specifically at UWTSD Swansea Campus will be added to this BAP upon completion of species-specific ecological surveys in the 2022 ecology season.

## Lampeter Campus

Table 3. Habitats of conservation importance at UWTSD Lampeter Campus

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase 1 Habitat Type** | **S7 Priority Habitat?** | **Reason for Inclusion in BAP (if not S7)** | **Conservation Target** |
| A3.1 Mixed Semi-Natural Woodland | **Yes** |  | **Maintain extent; protect mature/veteran trees; improve quality; retain undergrowth/scrub; opportunity to increase habitat connectivity; plant native species to diversify habitats; retain log/dead wood piles; screen imported soils to prevent introduction of non-native species; where appropriate thin dense strands of saplings to prevent dark, dense woodland; allow open areas to encourage ground flora to develop; erect bird/bat boxes on mature trees** |
| A2 Continuous and Scattered Scrub | No | Provision of habitat and food for birds, insects and small mammals; resources for nesting birds and foraging and commuting bats | **Maintain/Increase extent; encourage growth of native species** |
| A3 Parkland and Scattered Trees | **Yes** |  | **Maintain extent; improve quality; protect mature/veteran trees relaxation in management in appropriate areas to develop species to flower and seed** |
| B Poor Semi-Improved Grassland | No | Aid in drainage; habitat and food for pollinators | **Maintain extent; improve quality; increase native/wild species/species-rich grasslands (can act as linking-habitat in built-up areas); allow areas of disturbed/bare ground for insects; sympathetic maintenance regimes; leave a margin of longer grassland alongside any features such as boundaries or ditches** |
| C3.1 Tall Ruderal | No | Provision of habitat for birds and reptiles | **Maintain extent; improve quality** |
| G2 Running Water | **Yes** | River Dulais SAC | **Should be left undisturbed – any works should include a ‘buffer strip’ to maintain riparian corridor** |
| I1 Artificial Exposures and Waste Tips | No | Habitat provision for small mammals, insects and fungi | **Improve quality for habitat** |
| Individual Trees | No | Potential habitat for bats and birds (possible S7 species) – roost/nest; opportunity to increase habitat connectivity | **Increase extent – improvement in habitat connectivity** |
| J1.2 Amenity Grassland | No | Potential for improvement as offer little-to-no ecological interest; may offer habitat provision for invertebrates, birds and small mammals; aids with drainage | **Maintain extent; improve quality; develop areas to manage as wild flower meadows/species-rich grasslands (can act as linking-habitat in built-up areas); allow areas of disturbed/bare ground for insects; sympathetic maintenance regimes; leave a margin of longer grassland alongside any features such as boundaries or ditches** |
| J1.3 Cultivated Ephemeral/Short Perennial | No | Potential for improvement; Habitat provision for invertebrates; feed pollinating insects | **Maintain extent; if increase extent try to use native species(although diversity of species/structure is of greater importance than nativeness; improve quality for use by pollinating insects** |
| J1.4 Cultivated Introduced Shrub | No | Potential for improvement; Habitat provision for invertebrates and birds; feed pollinating insects | **Maintain extent; if increase extent try to use native species; improve quality for use by pollinating insects; maintain/encourage uncultivated areas as habitat for small mammals, birds and insects** |
| J2.1 Species Poor Intact Hedge | **Yes** |  | **Maintain/Increase extent; improve quality; opportunity to increase habitat connectivity; less rigorous management would encourage a dense hedge to develop, encouraging fruits, berries and seeds; encourage growth of tall vegetation along base of hedgerows** |
| J2.3 Hedgerow with Trees | **Yes** |  | **Maintain/Increase extent; improve quality; opportunity to increase habitat connectivity; less rigorous management would encourage a dense hedge to develop, encouraging fruits, berries and seeds; encourage growth of tall vegetation along base of hedgerows** |
| J2.5 Wall | No | Support mosses, lichens and ferns; insect habitat | **Maintain extent; encourage climbing plants** |
| J3.6 Buildings | No | Potential habitat for bats and birds (possible S7 species) – roost/nest | **Improve quality; offer new habitats through green roofing, bat/bird boxes, insect bricks; environmentally-mindful development** |
| J4 Bare Grounds | No | Potential for improvement as offer little-to-no ecological interest; may offer Basking habitat for small reptiles | **Maintain extent** |

Map

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Table 4. S7 priority species recorded within 2km of UWTSD Lampeter Campus (search area highlighted above)

|  |  |
| --- | --- |
| **Scientific Name** | **Common Name** |
| **Mammals** | |
| *Arvicola amphibius* | European Water Vole |
| *Erinaceus europaeus* | West European Hedgehog |
| *Lepus europaeus* | Brown Hare |
| *Lutra lutra* | European Otter |
| *Mustela putorius* | Polecat |
| *Myotis* | Unidentified Bat |
| *Myotis daubentonii* | Daubenton''s Bat |
| *Nyctalus noctula* | Noctule Bat |
| *Pipistrellus* | Pipistrelle |
| *Pipistrellus pipistrellus* | Common Pipistrelle |
| *Pipistrellus pygmaeus* | Soprano Pipistrelle |
| *Plecotus auritus* | Brown Long-eared Bat |
| **Birds** | |
| *Alcedo atthis* | Kingfisher |
| *Falco tinnunculus* | Kestrel |
| *Milvus milvus* | Red Kite |
| *Passer domesticus* | House Sparrow |
| *Phylloscopus sibilatrix* | Wood Warbler |
| *Poecile montanus* | Willow Tit |
| *Prunella modularis* | Dunnock |
| *Sturnus vulgaris* | Starling |
| *Turdus philomelos* | Song Thrush |
| **Reptiles and Amphibians** | |
| *Anguis fragilis* | Slow-worm |
| **Invertebrates** | |
| *Lasiommata megera* | Wall Brown |
| *Spilosoma lubricipeda* | White Ermine |

A table listing the species of conservation importance specifically at UWTSD Lampeter Campus will be added to this BAP upon completion of species-specific ecological surveys in the 2022 ecology season.

## Carmarthen Campus

Table 5. Habitats of conservation importance at UWTSD Carmarthen Campus

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase 1 Habitat Type** | **S7 Priority Habitat?** | **Reason for Inclusion in BAP (if not S7)** | **Conservation Target** |
| A3.1 Mixed Semi-Natural Woodland | **Yes** |  | **Maintain extent; protect mature/veteran trees; improve quality; retain undergrowth/scrub; plant native species to diversify habitats; retain log/dead wood piles; screen imported soils to prevent introduction of non-native species; where appropriate thin dense strands of saplings to prevent dark, dense woodland; allow open areas to encourage ground flora to develop; erect bird/bat boxes on mature trees** |
| A2 Continuous and Scattered Scrub | No | Provision of habitat and food for birds, insects and small mammals; resources for nesting birds and foraging and commuting bats | **Maintain/Increase extent; encourage growth of native species; opportunity to increase habitat connectivity** |
| A3 Parkland and Scattered Trees | **Yes** |  | **Maintain extent; improve quality; protect mature/veteran trees; opportunity to increase habitat connectivity; increase species and structural diversity; relaxation in management in appropriate areas to develop species to flower and seed** |
| B Poor Semi-Improved Grassland | No | Aid in drainage; habitat and food for pollinators | **Maintain extent; improve quality; increase native/wild species; relaxation in management in appropriate areas to develop species to flower and seed** |
| C3.1 Tall Ruderal | No | Provision of habitat for birds and reptiles | **Maintain extent; improve quality** |
| E3.2 Basin Mire | No | Potential for improvement; aid in drainage; | **Maintain/Increase extent; improve quality** |
| F2.1 Marginal Vegetation | No | Protection of river bank; provision of habitat | **Maintain extent; improve quality** |
| G1.2 Man-Made Ponds | **Yes** |  | **Restore pond to favourable condition; improve/maintain water quality; establish marginal and aquatic vegetation; identification of areas for new ponds** |
| I1 Artificial Exposures and Waste Tips | No | Habitat provision for small mammals, insects and fungi | **Improve quality for habitat** |
| Individual Trees | No | Potential habitat for bats and birds (possible S7 species) – roost/nest | **Increase extent – improvement in habitat connectivity; opportunity to increase habitat connectivity** |
| J1.1 Arable | **Yes** |  | **Maintain/Increase extent; improve quality** |
| J1.2 Amenity Grassland | No | Potential for improvement as offer little-to-no ecological interest; may offer; habitat provision for invertebrates, birds and small mammals; aids with drainage | **Maintain extent; improve quality; develop areas to manage as wild flower meadows/species-rich grasslands (can act as linking-habitat in built-up areas); allow areas of disturbed/bare ground for insects; sympathetic maintenance regimes; leave a margin of longer grassland alongside any features such as boundaries or ditches** |
| J1.3 Cultivated Ephemeral/Short Perennial | No | Potential for improvement; Habitat provision for invertebrates; feed pollinating insects | **Maintain extent; if increase extent try to use native species (although diversity of species/structure is of greater importance than nativeness); improve quality for use by pollinating insects** |
| J1.4 Cultivated Introduced Shrub | No | Potential for improvement; Habitat provision for invertebrates and birds; feed pollinating insects | **Maintain extent; if increase extent try to use native species; improve quality for use by pollinating insects; maintain/encourage uncultivated areas as habitat for small mammals, birds and insects** |
| J2.1 Species Poor Intact Hedge | **Yes** |  | **Maintain/Increase extent; improve quality; opportunity to increase habitat connectivity; less rigorous management would encourage a dense hedge to develop, encouraging fruits, berries and seeds** |
| J2.3 Hedgerow with Trees | **Yes** |  | **Maintain/Increase extent; improve quality; opportunity to increase habitat connectivity; less rigorous management would encourage a dense hedge to develop, encouraging fruits, berries and seeds; encourage growth of tall vegetation along base of hedgerows** |
| J2.5 Wall | No | Support mosses, lichens and ferns; insect habitat | **Maintain extent; encourage climbing plants** |
| J3.6 Buildings | No | Potential habitat for bats and birds (possible S7 species) – roost/nest | **Improve quality; offer new habitats through green roofing, bat/bird boxes, insect bricks; environmentally-mindful development** |
| J4 Bare Grounds | No | Potential for improvement as offer little-to-no ecological interest; may offer; Basking habitat for small reptiles | **Maintain extent** |

Map

Description automatically generated

Table 6. S7 priority species recorded within 2km of UWTSD Carmarthen Campus (search area highlighted above)

|  |  |
| --- | --- |
| **Scientific Name** | **Common Name** |
| **Mammals** | |
| *Chiroptera* | Bats |
| *Erinaceus europaeus* | West European Hedgehog |
| *Lutra lutra* | European Otter |
| *Meles meles* | Eurasian Badger |
| *Mustela nivalis* | Weasel |
| *Mustela putorius* | Polecat |
| *Myotis daubentonii* | Daubenton''s Bat |
| *Myotis mystacinus* | Whiskered Bat |
| *Myotis* | Unidentified Bat |
| *Nyctalus noctula* | Noctule Bat |
| *Pipistrellus nathusii* | Nathusius''s Pipistrelle |
| *Pipistrellus pipistrellus* | Common Pipistrelle |
| *Pipistrellus pipistrellus* | Pipistrelle |
| *Pipistrellus pygmaeus* | Soprano Pipistrelle |
| *Pipistrellus* | Pipistrelle |
| *Plecotus auritus* | Brown Long-eared Bat |
| **Birds** | |
| *Acanthis cabaret* | Lesser Redpoll |
| *Alcedo atthis* | Kingfisher |
| *Cettia cetti* | Cetti''s Warbler |
| *Chroicocephalus ridibundus* | Black-headed Gull |
| *Circus aeruginosus* | Western Marsh Harrier |
| *Emberiza schoeniclus* | Common Reed Bunting |
| *Falco columbarius* | Merlin |
| *Falco peregrinus* | Peregrine |
| *Falco tinnunculus* | Kestrel |
| *Larus argentatus* | European Herring Gull |
| *Linaria cannabina* | Linnet |
| *Locustella naevia* | Grasshopper Warbler |
| *Milvus milvus* | Red Kite |
| *Numenius arquata* | Curlew |
| *Passer domesticus* | House Sparrow |
| *Phalaropus lobatus* | Red-necked Phalarope |
| *Poecile montanus* | Willow Tit |
| *Poecile palustris* | Marsh Tit |
| *Prunella modularis* | Dunnock |
| *Pyrrhula pyrrhula* | Eurasian Bullfinch |
| *Sturnus vulgaris* | Starling |
| *Tringa ochropus* | Green Sandpiper |
| *Turdus iliacus* | Redwing |
| *Turdus philomelos* | Song Thrush |
| *Turdus pilaris* | Fieldfare |
| *Tyto alba* | Western Barn Owl |
| *Vanellus vanellus* | Lapwing |
| **Reptiles and Amphibians** | |
| *Anguis fragilis* | Slow-worm |
| *Bufo bufo* | Common Toad |
| *Rana temporaria* | Common Frog |
| *Zootoca vivipara* | Common Lizard |
| **Invertebrates** | |
| *Acronicta psi* | Grey Dagger |
| *Acronicta rumicis* | Knot Grass |
| *Agrochola helvola* | Flounced Chestnut |
| *Agrochola litura* | Brown-spot Pinion |
| *Agrochola lychnidis* | Beaded Chestnut |
| *Allophyes oxyacanthae* | Green-brindled Crescent |
| *Amphipoea oculea* | Ear Moth |
| *Apamea remissa* | Dusky Brocade |
| *Arctia caja* | Garden Tiger |
| *Boloria euphrosyne* | Pearl-bordered Fritillary |
| *Bombus humilis* | Brown-banded Carder-bee |
| *Bombus muscorum* | Moss Carder-bee |
| *Bombus ruderarius* | Red-shanked Carder-bee |
| *Brachylomia viminalis* | Minor Shoulder-knot |
| *Caradrina morpheus* | Mottled Rustic |
| *Ceramica pisi* | Broom Moth |
| *Chiasmia clathrata* | Latticed Heath |
| *Cirrhia icteritia* | Sallow |
| *Cupido minimus* | Small Blue |
| *Diarsia rubi* | Small Square-spot |
| *Ecliptopera silaceata* | Small Phoenix |
| *Ennomos erosaria* | September Thorn |
| *Ennomos fuscantaria* | Dusky Thorn |
| *Ennomos quercinaria* | August Thorn |
| *Eucera longicornis* | Long-horned Bee |
| *Helotropha leucostigma* | Crescent |
| *Hepialus humuli* | Ghost Moth |
| *Hipparchia semele* | Grayling |
| *Hoplodrina blanda* | Rustic |
| *Hydraecia micacea* | Rosy Rustic |
| *Lasiommata megera* | Wall |
| *Litoligia literosa* | Rosy Minor |
| *Lycia hirtaria* | Brindled Beauty |
| *Malacosoma neustria* | Lackey |
| *Melanchra persicariae* | Dot Moth |
| *Minoa murinata* | Drab Looper |
| *Orthonama vittata* | Oblique Carpet |
| *Orthosia gracilis* | Powdered Quaker |
| *Rhizedra lutosa* | Large Wainscot |
| *Scotopteryx chenopodiata* | Shaded Broad-bar |
| *Spilosoma lubricipeda* | White Ermine |
| *Spilosoma lutea* | Buff Ermine |
| *Thecla betulae* | Brown Hairstreak |
| *Tholera decimalis* | Feathered Gothic |
| *Timandra comae* | Blood-vein |
| *Tyria jacobaeae* | Cinnabar |
| *Watsonalla binaria* | Oak Hook-tip |
| *Xanthorhoe ferrugata* | Dark-barred Twin-spot Carpet |

A table listing the species of conservation importance specifically at UWTSD Carmarthen Campus will be added to this BAP upon completion of species-specific ecological surveys in the 2022 ecology season.

# BAP Objectives and Targets

1. **Management and Reporting**
   1. Ensure structured, multistakeholder management system approach
   2. Ensure BAP progress/issues reported on campus
   3. Implement Biodiversity Steering Group
   4. Create interactive app/intranet page for BAP
2. **Survey, Monitoring and Data Management**
   1. Agree a programme of data collection and surveys to monitor trends/progress
   2. Design and commission surveys (inc. protected species surveys)
   3. Undertake biodiversity metric calculations
3. **Habitat and Species Management**
   1. To maintain and improve current campus biodiversity
   2. Improve habitat connectivity/meld green and grey spaces on campus
   3. To establish new areas of habitat and introduce native species, where appropriate
   4. Ensure UWTSD activities and developments result in overall biodiversity net gain
4. **Engagement, Awareness Raising and Education** 
   1. Explore possibility of (re)introducing gardening/allotment clubs
   2. Explore possibility of using BAP development as a teaching resource
   3. Ensure engagement with staff, students and local community
   4. Raise awareness of UWTSD role in improving biodiversity
   5. Use biodiversity to promote healthy living and wellbeing

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1. **Document version control**

|  |  |  |  |
| --- | --- | --- | --- |
| Version No: | Reason for change: | Author: | Date of change: |
| V1 | Creation of Plan | KW/KM | 20.03.22 |
| V1.1 | Action Plan Update | KM | 12.07.23 |
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|  |  |  |  |

# Action Plan

## Management and Reporting

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1: Management and Reporting**  **Objective 1.1:** **Ensure structured, multistakeholder management system approach**  **Objective 1.2: Ensure BAP progress/issues reported on campus**  **Objective 1.3: Implement Biodiversity Steering Group**  **Objective 1.4: Create interactive app/intranet page for BAP** | | | | | |
| **Action No.** | **Action** | **Campus** | **Target Date** | **Progress** | **Lead Contact** |
| 1.1 | Publish BAP on UWTSD website | n/a | Jan 2022 | Complete | KW |
| 1.2 | Develop Biodiversity Steering Group (STG) | n/a | Feb 2022 | Complete | KW |
| 1.3 | Ensure BSG members have adequate training | n/a | Feb 2023 | Identifying courses | KW |
| 1.4 | Hold STG meetings termly | n/a | Termly | Ongoing | KW |
| 1.5 | Produce minutes of STG meeting, including targets for next term and review of previous actions taken | n/a | Termly | Ongoing | KW |
| 1.6 | Send monthly/termly email with BAP updates, achievements and volunteering opportunities to staff, students and local community | n/a | October 2023 |  | KM |
| 1.7 | Develop an app or interactive page on UWTSD intranet (allow staff/students to see what/where work is being done, make suggestions and how to get involved) | n/a | Jan 2024 |  | KLW |
| 1.8 | Produce annual implementation plan, including all biodiversity-related projects to be undertaken over next year | n/a | March 2022 | Complete | KW |
| 1.9 | Carry out annual review of BAP, updating action plan | n/a | June 2024 | Complete July 2023 | KM |
| 1.10 | Carry out full review of BAP every 4 years | n/a | Sept 2022 | In progress – Surveys done – await report | Ecology Planning |
| 1.11 | Publish updated BAP after each review | n/a | Ongoing |  |  |

## Survey, Monitoring and Data Management

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2: Survey, Monitoring and Data Management**    **Objective 2.1:** **Agree a programme of data collection and surveys to monitor trends/progress**  **Objective 2.2: Design and commission surveys (inc. protected species surveys)**  **Objective 2.3: Undertake biodiversity metric calculations** | | | | | |
| **Action No.** | **Action** | **Campus** | **Target Date** | **Progress** | **Lead Contact** |
| 2.1 | Create dedicated folder on Teams for BAP-related documentation | n/a | Jan 2022 | Complete | KW |
| 2.2 | Determine programme of ecological surveys, including annual Phase 1 and protected species surveys | All | Sept 2022 | In progress – Surveys done – await report | Ecology Planning |
| 2.3 | Order local environmental data searches to supplement Phase 1 survey and to inform future species-specific surveys | All | Sept 2022 | In progress – Surveys done – await report | Ecology Planning |
| 2.4 | Characterise level and distribution of biological diversity on site via intensive ecological surveys | All | Mar-Sept 2022 | In progress – Surveys done – await report | Ecology Planning |
| 2.5 | Create list of ecological surveys that could be undertaken by bioscience students/volunteers | All | Oct 2022 |  |  |
| 2.6 | Map and record condition and location of all bird/bat boxes | Lampeter, Carmarthen | Oct 2022 |  |  |
| 2.7 | Create a register of species of conservation importance at each campus | All | Oct 2022 | Complete | Ecology Planning |
| 2.8 | Maintain records of all surveys undertaken on campus, review as agenda item at BSG meetings | All | Ongoing |  | KM |
| 2.9 | Using Year 1 as a baseline to calculate the extent of each habitat, undertake biodiversity metric calculations to monitor progress | All | Jan 2023 |  | KW |

## Habitat and Species Management

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **3: Habitat and Species Management**  **Objective 3.1:** **To maintain and improve current campus biodiversity**  **Objective 3.2: Improve habitat connectivity/meld green and grey spaces on campus**  **Objective 3.3: To establish new areas of habitat and introduce native species, where appropriate**  **Objective 3.4: Ensure UWTSD activities and developments result in overall biodiversity net gain** | | | | | |
| **Action No.** | **Action** | **Campus** | **Target Date** | **Progress** | **Lead Contact** |
| 3.1 | Review current grounds maintenance regimes (where appropriate look to reduce cutting frequency and extent of grass cutting, put signs in place to identify areas of reduced management) | All | Feb 2022 | Review complete subsequent action plan published on internal sharepoint. | NS |
| 3.2 | Identify areas for creation of wildflower meadows | Lampeter, Carmarthen | June 2024 | Complete  Meadow Implementation plan to be created | NS |
| 3.3 | Identify areas to allow “scruffy” and uncultivated habitat development | All | May 2022 | Complete  Reviewed June 2023 | NS |
| 3.4 | Identify hedges to be less rigorously maintained (allowing more dense hedges to develop and leaving taller vegetation along base) | All | Mar 2022 | Complete  Gap filling commences Sept 2022 | CE |
| 3.4.1 | Hedgerow species mapping and diversification planting plan | All | October 2023 |  | NS |
| 3.4.2 | Develop planting and cost proposal for ABN hedges | Carmarthen | July 2023 | Low levl and along building edges where possible. Ensure Protect ED & UUK safety guidance is followed. | NS |
| 3.5 | Ensure woodlands are sympathetically maintained (where appropriate retain undergrowth/scrub; plant native species to diversify habitats; retain log/dead wood piles; screen imported soils to prevent introduction of non-native species; where appropriate thin dense strands of saplings to prevent dark, dense woodland; allow open areas to encourage ground flora to develop) | Lampeter, Carmarthen | Ongoing | Complete. All trees are mulched at base. | NS |
| 3.6 | Identify locations to erect bat/bird boxes | All | April 2022 | Complete | KM |
| 3.6.1 | Installation of bird/bat boxes | All | October 2023 | Quantarc raised, all to be installed for winter nest finding season. | GW |
| 3.7 | Plant nectar rich plant species and native wildflowers in place of less-diverse ornamentals | All | Ongoing | Working in conjunction with National Botanical Garden of Wales team to increase species | CE |
| 3.8 | Redevelop existing pond and identify areas to create new ponds | Carmarthen | Jan 2024 | Local Spaces for Nature Grant successful and 1 x pond area to be naturized and 1 x pond area to be developed. Project paused due to cost increase. | CMJ |
| 3.8.1 | Planting list of species to improve section 7 diversity on campus around pond areas | Carmarthen | October 2023 |  | NS |
| 3.9 | Embed pond management into grounds management procedures | Carmarthen | Jan 2023 | Training delivered as part of the grant. Pond Mgt Level 2 | CMJ |
| 3.10 | Remove/control all non-native, invasive plant species and replace with native where appropriate | All | Ongoing | Develop an invasive species hot-spot map for | NS |
| 3.11 | Ensure building projects considers and protects biodiversity and ideally results in overall biodiversity net gain, or mitigation of any potential damages | All | Ongoing |  | CMJ/KLW |
| 3.12 | Map Ash stock and monitor for die back | All | November 2023 |  | NS |
| 3.13 | Re-establish onsite nursery to improve native display flower availability. | Carmarthen Lampeter | January 2024 | Planting in June | NS |
| 3.13.1 | Develop visual guide of Botanic Garden short and long pronged insect flowering species list to aid in species selection for display gardens. | All | October 2023 |  |  |
| 3.14 | Develop wetland habitats | Cynefin |  |  | CMJ |
| 3.15 | New planting areas to be stablished utilising short and long pronged species. | Carmarthen | February 2024 |  | NS |
| 3.15.1 | Map planned new bed locations | All | October 2023 |  | NS |
| 3.16 | Bug huts | All | June 2024 | Grounds to keep log rounds form tree pruning. | NS |
| 3.17 | Native climbing species planting on chain-link fence with mammal highway tunnels installed | Carmarthen | February 2024 | Potenital species honeysuckle & ivy | NS |
| 3.18 | Improve drainage ditches in meadow wetland as habitat corridors and water table stabilisation in drought intervals. | Lampeter | October 2024 | Seeking management guidance from West Wales River Trust | KM |
| 3.19 | Larch wall removal and meadow bank establishment. | Lampeter | June 2025 |  | CMJ/NS |
| 3.2 | Birdbaths installation, ground mammal water stations | All | June 2024 |  | NS |
| 3.21 | Ramp all pond areas or add natural sloped border | Carmarthen | August 2023 |  | NS |
| 3.22 | Increase cut lengths to improve species diversity and reduce evaporation | All | July 2023 | Grounds team complete  KM to update maps and provide to NS for contractors. | NS |
| 3.23 | Map natural pond locations for future works | All | October 2023 |  | NS |
| 3.24 | Develop native pond species list to aid selection going forward. | All | October 2023 | Yellow Iris | NS |
| 3.25 | Climbing green walls on building stock | All | July 2023 | Utilise perennial vines on south facing locations to provide summer shading | NS |
|  | Map hedgerow expansion map | All | October 2023 |  | NS |
|  | Water butts for display gardens | All | October 2023 |  | NS |

## Engagement, Awareness Raising and Education

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **4: Engagement, Awareness Raising and Education**  **Objective 4.1:** **Ensure engagement with staff, students and local community**  **Objective 4.2: Raise awareness of UWTSD role in improving biodiversity**  **Objective 4.3: Explore possibility of using BAP development as a teaching resource**  **Objective 4.4: Use biodiversity to promote healthy living and wellbeing**  **Objective 4.5: Explore possibility of (re)introducing gardening/allotment clubs/bee keeping** | | | | | |
| **Action No.** | **Action** | **Campus** | **Target Date** | **Progress** | **Lead Contact** |
| 4.1 | Communicate BAP objectives/progress to all ground maintenance staff to raise awareness of importance | All | Jan 2022 | Complete | KW |
| 4.2 | Communicate BAP objectives/progress to staff, students and local community through local press and social media | n/a | Ongoing |  | KM |
| 4.2.1 | Monthly communication of BAP progress through bulletin and local newsletter | All | Ongoing |  | KM/AF |
| 4.3 | Identify any biodiversity-related training required for staff to ensure BAP objectives are met | n/a | Oct 2023 | Hedgehog aware ness training undertaken by all grounds staff November 2022 | NS/RM |
| 4.4 | Develop volunteering opportunities for students, staff and local community (Use social media/SU to communicate) | All | August 2023 | Working in conjunction with SU.  Volunteering calendar under review for 2023/24 academic year | KM/KLW |
| 4.5 | Develop teaching resources around biodiversity gain/BAP (interactive learning, developing fieldwork skills, student research projects) | All | Jan 2024 | Review whether this action is appropriate given curriculum | KW |
| 4.6 | Look into feasibility of (re)introducing gardening and allotment clubs and beehives | Lampeter, Carmarthen (Swansea potential for beehives) | Jan 2023  September 2023 | Lampeter complete.  Carmarthen working with external partner to improve uptake of beds | NS |
| 4.7 | Promote the use of green space on campuses for the wellbeing of staff and students | All | Ongoing | Wellbeing and Wildflower walks are in place | ELW |
| 4.8 | Develop an on campus nature trail | All | Complete | Wellbeing walk available on Lampeter, Carmarthen & Swansea campus. | ELW |
| 4.9 | Map planned fruit tree locations and develop edible campus walk | Lampeter & Carmarthen | October 2023 Map  September 2024 planting |  | NS |
| 4.9.1 | Lampeter Cliff tucker edible garden and roundabout fruit | Lampeter | April 2024 | LP4N funding bid in. Investigate rainwater collection as part of project. | CMJ |