University of Central Lancashire
UCLan

Safety Health & Environment Department

Biodiversity Action Plan 2017/18 - 2022/23

July 2017

Version 3.2

Document review due: July 2020

Contents

1. Introduction 3
2. Site Context 4
3. Continual Improvement 4
4. PLAN 5
4.1. Phase 1 Habitat Survey 5
4.1.1. Habitat Types 5
4.1.2. Protected Species 5
4.1.3. Biological Heritage Sites 6
4.1.4. Lancashire BAP Species 8
4.2. Existing Management Practices 10
5. DO 12
6. CHECK 12
7. ACT 13
8. Appendix 1: Extended Phase 1 Habitat Management 15
9. Appendix 2: Principle Habitat Types 17
10. Appendix 3: Document History 20

1. Introduction

This revised five year Biodiversity Action Plan provides the framework for supporting and enhancing biodiversity at UCLan's Preston based campus. It is based on the original Biodiversity Action Plan 2013-2018 and has been designed specifically to guide and support the work of the Grounds Team but also to inform Estates Services and Capital Projects staff of biodiversity principles and its relevance to works. The key objectives are:

- Guide Estates Services, Grounds management programmes and practices to conserve and enhance campus biodiversity;
- Support the University's ISO14001 Environmental Management System's intended outcome regarding continual improvement;
- Increase the coordination and awareness of biodiversity throughout all University operations especially as the University Masterplan develops;
- Engage stakeholders in biodiversity issues by increasing awareness.

Whilst UCLan Sports Arena presents the biggest opportunity for enhancing biodiversity this action plan covers only the city centre campus as this is where the greatest pressures on biodiversity present themselves and where the health and well-being benefits can be best realised.

This Biodiversity Action Plan is also informed by the UK Biodiversity Action Plan (http://jncc.defra.gov.uk/page-5155) and the Lancashire Biodiversity Action Plan (http://www.lancashire.gov.uk/lern/services.aspx) to support and improve habitats and species identified as threatened at a national and regional level

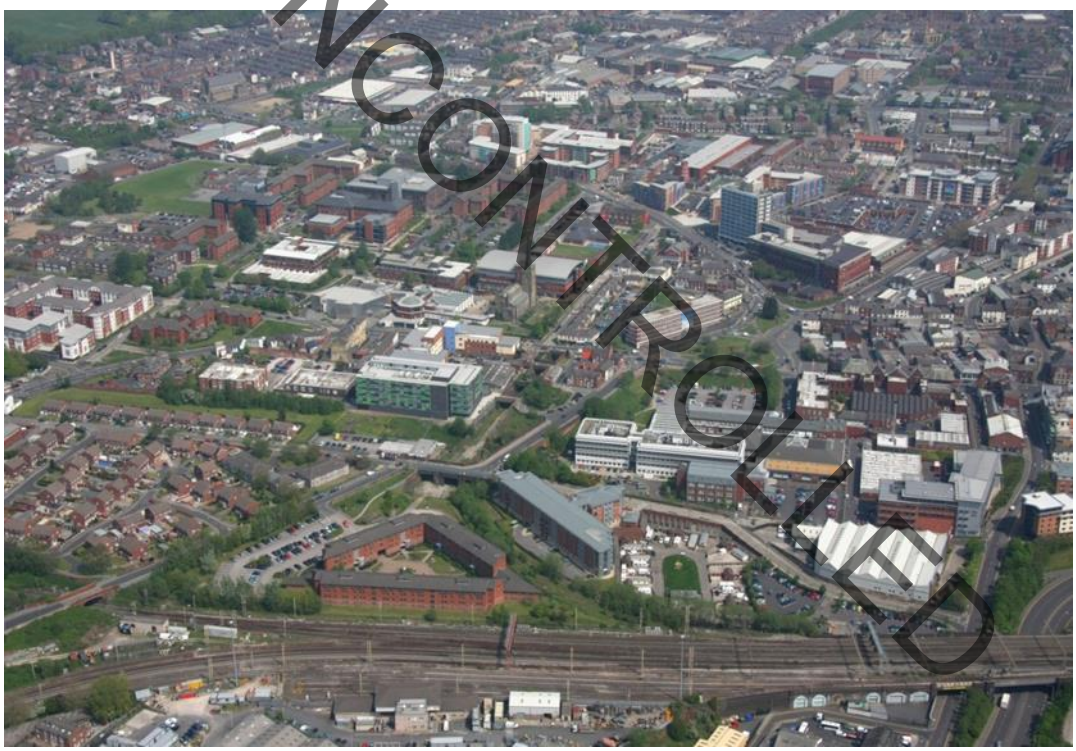
The objectives and management plan contained within this Biodiversity Action Plan fit within national and regional contexts ensuring that local biodiversity is conserved and enhanced.

2. Site Context

The city centre campus covers approximately 29 acres (excluding building footprints) and is a brownfield site. Much of the south and west area of campus around the Media factory and JB Firth was, in the past, used for heavy industry adjacent to the now defunct Lancaster canal basin and other areas were mostly residential. Soils are therefore generally poor, consisting of building rubble over sand and boulder clay. At approximately 35 metres above sea level the soils rarely suffer from prolonged effects of rain, the only wet area being at the back of Whitendale halls and the back of Media Factory on the former canal basin.

Although the green spaces on campus only constitute small areas, as the aerial photo shows, together they help make a green impact on the City landscape.

The University's BAP aims to ensure that a balanced approach to the management of its green space is achieved, one which continues to provide a pleasant external environment which meets client requirements whilst at the same time increasing ecological value.



3. Continual Improvement

A process of Plan, Do, Check, Act is followed to ensure biodiversity is systematically planned and managed ensuring continual improvement. The action plan element of 'Act' is excluded from this revision, this is now contained in a working landscape plan owned by the Grounds team. This BAP should be used as a reference document which sets out the biodiversity principles, best practice and monitoring requirements rather than a programme of works.

4. PLAN

An assessment of the habitat and review of current management practices are used to determine habitat management priorities which will enhance biodiversity on campus.

4.1. Phase 1 Habitat Survey

An Extended Phase 1 Habitat survey (JNCC, 2010) was conducted in July 2011 by Ecology Services Limited. This was designed to establish the nature, extent and distribution of the wildlife habitat resource on Preston City Campus and up to 30m from the site boundary. The Phase 1 habitat survey also provides a baseline survey which is useful for monitoring habitat change.

4.1.1. Habitat Types

The following habitat types were identified on site and identified on the Habitat Maps (see Appendix 1).

- Woodland Broad-leaved (Plantation)
- Scrub (Dense/continuous or Scattered)
- Scattered Trees
- Neutral Grassland Semi-improved
- Poor Semi-improved Grassland
- Bracken
- Tall Ruderal
- Amenity Grassland
- Introduced Shrub
- Boundaries (Hedgerows/Fencing/Walls)
- Buildings
- Bare Ground

Descriptions of the principle habitats types together with an evaluation of the habitats to support species are detailed in Appendix 2.

4.1.2. Protected Species

As part of a Phase 1 Habitat Survey, surveyors also recorded any wildlife observed. Particular emphasis was placed upon sightings of protected species or species of conservation interest. Direct observations of the species were noted. Furthermore, sites/habitats with potential to support the species were also noted, even if direct signs of presence were not apparent. This is done in order to scope the potential for protected species at the site.

- **Bats:** The site and the wider survey area contain numerous buildings, scattered trees and plantation woodland that are considered to be suitable for use by bat

species for foraging and as potential roosting habitat. Linear features within the wider landscape such as hedgerows and woodland edges are likely to be those associated with greatest bat activity. The survey area contains numerous buildings and trees that may provide suitable bat roost habitat. Foraging habitats take the form of scrub, woodland edges, trees, hedgerows and over tall ruderal and grassland areas.

- **Hedgehogs:** Habitats within the survey area are suitable to support hedgehog and consideration for this species should be given when works are undertaken at the site.

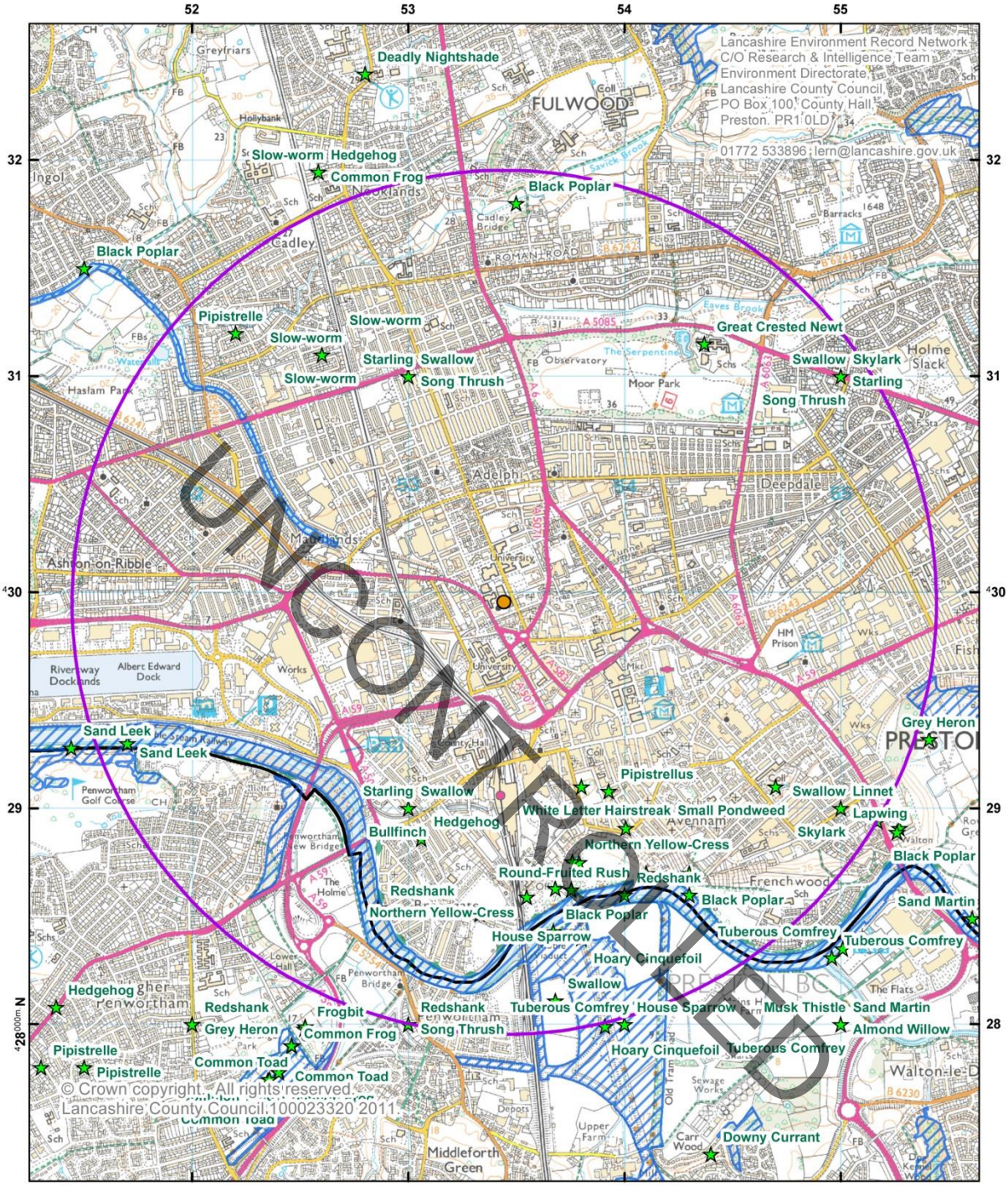
- **Birds:** The survey area provides a range of habitats suitable for birds. Breeding bird habitat present includes; woodland, scattered trees, scrub, hedgerows, tall ruderal (in larger areas) and introduced shrub. Foraging habitat present takes the form of woodland, scattered trees, scrub, hedgerows, tall ruderal, introduced shrub and grassland areas.

4.1.3. Biological Heritage Sites

There are three Biological Heritage sites within 2km buffer zone of campus; the Lancaster Canal, Preston Junction and the River Ribble, all predominantly linear sites creating important wildlife corridors in the area (see Map 1). Due to the proximity of the University to all these sites it is important that efforts are made within this BAP to help connect wildlife corridors to allow important species to move and increase:

- **Lancaster Canal:** The largest and most species-rich water body in the county supporting a very rich assemblage of plants and animals characteristic of slow-flowing water bodies. It provides a valuable habitat for birds, for dragonflies and damselflies as well as acting as a valuable foraging area for bats. Originally the canal basin was located in the Leighton/Maudland area of Preston where the University now stands but the canal now terminates less than 1km from campus.
- **Preston Junction LNR:** Comprises a length of disused railway line, an old tramway, a number of low lying, semi-improved fields and woodland adjacent to the current railway line. The intimate mixture of grassland, woodland, scrub and waste ground create a rich and varied mosaic that is an important reservoir for wildlife in the area.
- **River Ribble Upper Tidal Section:** Comprises a section of the River Ribble and its banks, running from the mouth of Preston Dock upstream to London Road Bridge. The site supports a range of habitats, including tidal mud flats, saltmarsh, strandline, running water, river shingle, tall-herb vegetation, scrub, parkland trees and grasslands.

Map 1: Biological Heritage Sites and LBAP species


52
53
54
55
32
31
30
29
28
428000m N
Lancashire Environment Record Network
C/O Research & Intelligence Team
Environment Directorate
Lancashire County Council
PO Box 100, County Hall
Preston. PR1 0LD
01772 533896; lern@lancashire.gov.uk
Deadly Nightshade
Slow-worm
Hedgehog
Common Frog
Black Poplar
Pipistrelle
Slow-worm
Starling
Swallow
Song Thrush
Great Crested Newt
Swallow
Skylark
Starling
Song Thrush
Sand Leek
Grey Heron
Pipistrellus
Starling
Swallow
Swallow
Linnet
White Letter Hairstreak
Small Pondweed
Lapwing
Hedgehog
Bullfinch
Skylark
Northern Yellow-Cross
Black Poplar
Round-Fruited Rush
Redshank
Redshank
Black Poplar
Sand Martin
Northern Yellow-Cross
Black Poplar
House Sparrow
Tuberous Comfrey
Tuberous Comfrey
Hoary Cinquefoil
Swallow
Hedgehog
Redshank
Frogbit
Redshank
Tuberous Comfrey
House Sparrow
Musk Thistle
Sand Martin
Grey Heron
Common Frog
Song Thrush
Almond Willow
Pipistrelle
Hoary Cinquefoil
Tuberous Comfrey
Common Toad
Pipistrelle
Common Toad
Downy Currant
UNCONTROLLED
© Crown copyright. All rights reserved.
Lancashire County Council 100023320 2011.
uclan
uclan 2km Buffer
Lancashire BAP Provisional Long List
Biological Heritage Sites
N
1:22,250 Date: 06/01/2012
LeRN

4.1.4. Lancashire BAP Species

Nationally and/or locally significant species found in the 2km buffer zone of campus are also identified in Map 1. Habitat management opportunities on campus to support these species and provide corridors for species to migrate and establish are indicated in Table 1 below.

Table 1: LBAP Species

Group	Species	Conservation Status	Opportunities at University to support species
Amphibians	Great Crested Newt	UK BAP Priority*** and Lancashire BAP Priority species. Declining.	The city campus has no water bodies that were identified in the Phase 1 survey to support the great crested newt. They are found at USA. The provision of connecting habitats (e.g. ditches, hedgerows, rough grassland, damp areas) will provide wildlife corridors to allow the great crested newt to extend into new habitats.
Reptiles	Slow Worm	UK BAP Priority*** Declining.	Habitats can be improved by providing structural variation to the ground surface. Creating compost heaps, planting hedges with native species, bramble patches or scattered bushes all provide useful habitats. Compost heaps are favoured habitats and care must be taken when using or turning compost so as to not harm over-wintering species including newts and slow worms (leave heaps undisturbed as long as possible and definitely between November and mid-March).
Mammals	Hedgehog	UK BAP Priority*** Hedgehog numbers have estimated to have dropped by 25% in just 10 years.	Create habitats for hedgehogs e.g. hedges, wood piles, ponds etc
Mammals	Pipistrelle Bat	Lancashire BAP Priority*** species. Significant decline, estimated at 70% between 1978 and 1993	Create aquatic habitats to help support aquatic insects on which the bats feed. Retain mature trees to provide habitats for bat roosts.
Birds	Starling	Red* status as has suffered severe (66%) contraction of UK breeding range since mid 1970s.	Cause of decline in UK unknown but they are heavily dependent on soil invertebrates like earthworms and leatherjackets so management of lawned areas to encourage these species important. Retain mature trees for roosts.
Birds	Swallow	Amber* status. Widespread Decline across Europe. .	Affected by the weather. Can encourage through a healthy insect population and providing nest sites in out buildings.
Birds	Song Thrush	Red* status as the population in England declined by more than 50 per cent between 1970 and 1995.	Increase the extent of suitable nest sites, cover and feeding areas (eg woodland edge, mature hedgerow, woody shrub, rough grassland). Delay first mowing of longer grassland until after seed set of

			grasses and forbs in August. Incorporate plants bearing berries into more formal areas for winter food.
Birds	Skylark	Red* status as the UK the population halved during the 1990s, and is still declining.	Increase the area of longer grassland which provides nesting and feeding; delay first mowing until after the end of the nesting season in early August.
Birds	Redshank	Amber* status.	As Redshanks breed in damp places like saltmarshes, flood meadows and around lakes there is little scope to provide additional habitats on campus.
Birds	Bullfinch	Amber* status.	Bullfinches prefer habitats such as woodlands, orchard and hedgerows. The recent planting of fruit trees on campus should encourage them as they feed voraciously on the buds of various trees in spring and were once a 'pest' of fruit crops.
Birds	Linnet	Red* status as numbers have dropped substantially over the past few decades, with the UK population estimated to have declined by 57 per cent between 1970 and 2008.	Eat seeds and insects so can be encouraged by planting seed rich plants and manage lawns to encourage insect populations by leaving longer grassed areas.
Birds	Lapwing	Red* status as significant declines, the population declines have been greatest in southern England and Wales	A farmland bird. No extensive areas of grassland to encourage lapwings on campus.
Birds	House Sparrow	Red* status. Reasons for decline unknown. Since the 1970's numbers in rural England have nearly halved while numbers in towns and cities have declined by 60 per cent.	Nesting can be encouraged by providing nestboxes and the availability of thick hedges or conifers. Eat seeds and scraps and the youngsters are fed on a variety of invertebrates eg caterpillars
Butterfly	White Letter Hairstreak	UK BAP status: Priority Species	Breeds where elms occur in sheltered hedgerows, mixed scrub, and the edges of woodland rides, and also on large, isolated elms.

* Birds of Conservation Concern 2009
** Lancashire BAP Long List of Species: Plants 2011
*** Lancashire BAP Long List of Species: Amphibian, Reptile, Mammal, and Fish 2010
http://www.lancashire.gov.uk/lern/services.aspx

4.2. Existing Management Practices

An assessment of the current management practices (July 17) has been undertaken to identify any management changes which can enhance biodiversity.

- **Grassland**

The formal grassed areas are mown once per week (in season) with the less formal areas bi-weekly. Rough grassland occupying steeper and/or less accessible areas of campus have relaxed cutting regimes and are mown annually in August or are block mown 2-3 times per year. The clippings are either collected and composted or used as mulch in remoter areas.

- **Trees**

The campus has many trees of different varieties, including fruit and flowering trees. Edible fruiting species have been planted to engage staff and students and they are encouraged to pick when ripe. Some trees need to be removed due to building works or because they are getting too large for their location, obscuring security cameras etc. In these instances the University has made a commitment to replace any trees lost to development at a ratio of 3:1. There are a number of trees designated with tree preservation orders at the Fylde Road site.

Wood chippings and prunings are either used as mulch or composted. Logs are stacked to provide small mammal habitats or are given away.

- **Hedges**

Hedges are pruned using hedge trimmers but those identified as suitable nest sites are avoided until after fledging. Traditional hedge laying techniques are not used on any hedges.

- **Wet/Damp**

The only damp areas on campus are at the back of Whitendale residences, where the soil overlies a previously built-up area impeding drainage and at the back of Media factory on the site of the old canal basin. These areas are currently left relatively undisturbed.

- **Herbaceous Borders**

Consist of mixed native and non-native species chosen to introduce flowers for an extended season as well as seed and nectar rich varieties to provide food for insects and birds throughout the year. Weed control is a mix of cultural (hand weed and mulching) and chemical. Due to time pressures chemicals are being used more with approximately 4 applications per year of Roundup Pro-bioactive used to control weeds.

- **Built Environment**

Bird boxes have been installed across campus in the past but these need to actively managed and a lack of capacity within the team has meant that that this practice hasn't continued. Climbing plants have for the most part been removed as they have obscured security cameras. Green roofs have been included in a few of the new developments.

- **Process**

Green waste from campus is either composted at a purpose built compost facility at UCLan Sports Arena (USA) or used as mulch in remoter areas of campus. Some green waste, including persistent weed species are disposed in a locked skip located on Vernon carpark which is landfilled. A University road sweeper is used to clean verges, however it has been out of action for a prolonged period of time meaning that additional chemicals to control weeds has been used. There are non-native invasive species on the main campus, Himalayan balsam is found at USA and is controlled by cutting back in June/year.

5. DO

The following ecological principles, based on the existing management practices, campus survey and local biodiversity priorities, will form the basis of the biodiversity action plan and landscape plan:

- Improve the biodiversity of sites through slight alterations to habitat management;
- Create buffer zones or margins to protect sites from surrounding pressures;
- Increase the size of existing habitats where feasible;
- Enhance connections between sites, either through wildlife corridors or stepping stones;
- Create new sites.

6. CHECK

Regular monitoring is fundamental to the long-term success of the action plan. The key indicators, used to measure improvements are:

- **Ecological surveys**

Specific biodiversity surveys should be undertaken on sites identified for construction or extension works. These specific surveys should be recorded in the Register of Site Surveys ENVREC017.

A Phase 1 habitat survey is recommended once the University 10 year Masterplan (2015-2025) is near completion and preferably by 2021 which will be 10 years from the first Phase 1 survey.

The timings of surveys is critical and the documents contained within the University's Environmental System; Biodiversity Surveys Calendar ENVREC004 and Biodiversity Survey Timings Tool Box Talk ENVREC054 should be referred to when organising surveys.

- **Awareness Surveys**

Surveys of staff and students attitudes to the campus environment and appreciation of biodiversity should be measured.

The Students' Union Green Ladder project (now defunct) conducted a Student Lifestyle survey in semester 1 2013/14 which provides a baseline for student awareness and knowledge of the term Biodiversity. Biodiversity was the least well known of the environmental terms provided with 27.2% of student respondents stating that they had 'a lot' or 'a fair amount' of knowledge and awareness of Biodiversity.

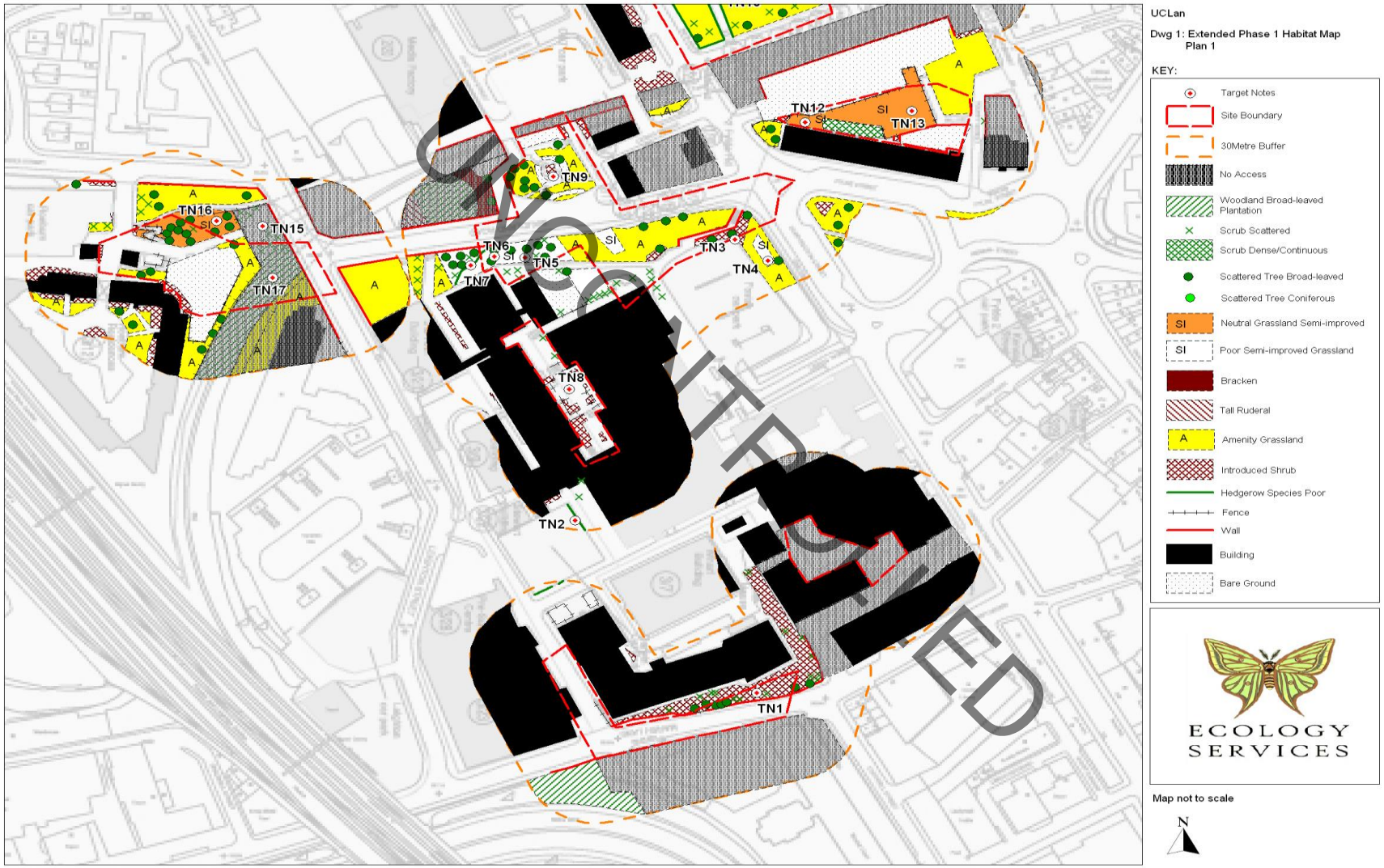
7. ACT

Biodiversity objectives for different habitats and associated best practice management are shown below. The 'live' element of this 'Act' section is contained within the Estates Services landscape plan, implemented by the Grounds team.

Biodiversity Objective	Management Best Practice
Grassland: The development of greater species diversity is created by minimal mowing regimes and raking of cut grass to reduce soil fertility. Allow grasses to flower and set seed to provide nectar and seeds. Create bare patches through very short cutting (in spring or autumn) for sowing wildflowers or plugs/bombs. As long as verges/edges are mowed these areas maintain a managed look.	• **Annual mowing regime in Autumn, rake grass & remove** • **Block cut areas to create interest** • **Cut verges and paths to create managed look** • **Sow wildflower seeds/plugs/bombs** • **Introduce bulbs**
Trees: A variety of trees including fruiting and flowering varieties ensures food sources. Compact, dwarf varieties will future proof trees in urban areas. Native trees create habitats for insects. Trees also provide nesting sites and larger trees create roosting sites for bats and birds, such as starlings.	• **Retain mature trees when feasible** • **Any trees removed to be replaced 3:1** • **Select new trees (species and location) to ensure their future** • **Prune to retain shape and size**
Wet/Damp Areas: Support a range of aquatic invertebrates and plant species and can be left largely unmanaged. Create stepping stones for species. Un-mown margins at edge of damp areas of 2 metres creates a buffer.	• **Conserve wet/damp areas** • **Keep margins unmown to 2 metres.** • **Manage existing ponds (USA) – minimal management and silt removal in winter only**
Hedges: Plant up new mixed hedges using native species. Allow tall and herb grass vegetation to develop along the base of hedges to provide foraging habitat for invertebrate, bird and animal species. Provide a margin each side of the hedge of 2 metres from the base. Thick hedges provide suitable nest sites. Connect habitats using hedges to create wildlife corridors.	• **Plant up new hedges to connect habitats** • **Create 2 metre margins alongside existing hedges (cut every 2nd winter**) • **Allow hedges to thicken** • **Consider traditional hedge laying techniques**
Herbaceous Borders Structural and species diversity in ornamental planting is important as it provides a range of canopy heights and can be rich in food sources for invertebrates and birds (nectar, berries, seed heads). Prune between August to February to avoid nesting birds and prune as late as possible in the winter to maintain cover and seed heads through the winter.	• **Provide nectar and seed rich plant varieties** • **Plant fruiting shrubs** • **Select shrubs useful to bees** • **Prune as late as possible in winter**
Biodiversity Objective	**Management Best Practice**

Built Environment: as cities expand, the built environment is becoming more important in supporting biodiversity**.** Green roofs are an excellent way to create new habitats and can be very low maintenance. Roof spaces can also house bee hives. Bird and bat boxes can be designed into new builds. These need to properly managed after the end of each breeding season (October or November) - nest boxes should be taken down, old nesting materials removed and the box scalded with boiling water to kill any parasites. Climbing plants can create additional habitats on walls and create vertical gardens.	• **Support creation of green roofs** • **Establish bird and bat boxes and set up management** • **Facilitate introduction of bees** • **Allow climbing plants to establish and manage to prevent encroachment**
Process: Composting green waste diverts it from landfill and provides a resource. Compost heaps provide habitats for slow worms etc. Weedkillers and other chemicals should be used sparingly. Non-native invasive species need to be controlled to prevent them becoming dominant.	• **Create small compost heaps** • **Leave compost heaps undisturbed for as long as possible. Do not disturb between November and mid-March.** • • **Ensure that verges are cleaned using the road sweeper rather than through the application of chemicals.** • **Himalayan Balsam (USA) to be controlled annually to prevent flowering (June)**
Other: It is important the staff and students engage with and are informed of the new management plans. Campus grounds can be utilised for research projects, real world experience.	• **Support staff and student growing projects, research projects etc** • **Create links with local community** • **Erect signs to inform stakeholders of management techniques.**

8. Appendix 1: Extended Phase 1 Habitat Management



UCLan

Dwg 1: Extended Phase 1 Habitat Map
Plan 2

KEY:

- Target Notes
- Site Boundary
- 30Metre Buffer
- No Access
- Woodland Broad-leaved Plantation
- Scrub Scattered
- Scrub Dense/Continuous
- Scattered Tree Broad-leaved
- Scattered Tree Coniferous
- SI — Neutral Grassland Semi-improved
- SI — Poor Semi-improved Grassland
- Bracken
- Tall Ruderal
- A — Amenity Grassland
- Introduced Shrub
- Hedgerow Species Poor
- Fence
- Wall
- Building
- Bare Ground

ECOLOGY SERVICES

Map not to scale

N

9. Appendix 2: Principle Habitat Types

Habitat	Description	Evaluation
Woodland Broad-leaved (plantation)	Tree species included; silver birch (*Betula pendula*) and goat willow *(Salix caprea)*. Understory comprised of scrub, including; bramble *(Rubus fruticosus)*and dogwood sp (*Cornus sanguinea)* with oak sp *(Quercus sp)* and beech sp (*Fagus sp*) regeneration, privet sp *(Ligustrum sp)* and hazel (*Corylus avellana*).	The woodland areas are considered to have a high conservation value habitat for their flora and fauna species they support and form important features within the landscape. Fauna species may include breeding birds, roosting bats and other invertebrates. Any works affecting woodland areas may need to take into account the species prior to disturbance.
Scrub	Scrub is relatively common habitat throughout the local vicinity and is found at several locations within the site and the wider survey area. Scrub species recorded include; silver birch regeneration, privet, goat willow, rowan (*Sorbus aucuparia*), bramble and dogwood sp, wych elm (*Ulmus glabra*), common hawthorn *(Crataegus monogyna),* blackcurrant (*Ribes nigrum*), elder *(Sambucus nigra),* hazel, oak sp and beech sp regeneration.	Scrub habitats can be valuable for birds (breeding and foraging) and mammals including small mammals and foraging bats.
Scattered Trees	The site contains several scattered trees, the majority of which are considered to be planted. They are generally semi-mature to young in age with a few mature specimens being present. Tree species include; silver birch, sycamore *(Acer pseudoplatanus),* small-leaved lime (*Tilia cordata*), hornbeam (*Carpinus betulus*), common ash *(Fraxinus excelsior)* common alder (*Alnus glutinosa*),rowan, pine sp (*Pinus sp*), Swedish whitebeam (*Sorbus intermedia*), sweet chestnut (*Castanea sativa*), apple sp (*Malus sp*), common hawthorn, copper beech (*Fagus sylvatica 'Purpurea'*), goat willow, false acacia (*Robinia pseudoacacia*), cherry sp *(Prunus sp),* tulip tree *(Liriodendron tulipifera)*, conifer sp, common whitebeam (*Sorbus aria*) and pedunculate oak *(Quercus robur).*	Scattered trees are important features within the landscape. Trees support a wide range of terrestrial invertebrates which in turn support foraging birds and bats. They are also important for breeding birds and can provide suitable bat roost habitat if they contain crevices.

Neutral Grassland Semi-improved	Neutral semi-improved grasslands found within the survey area contain; red fescue (*Festuca rubra*), Yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenatherum elatius*), creeping bent (*Agrostis stolonifera*) perennial rye-grass (*Lolium perenne*), common bent (*Agrostis tenuis*), sweet vernal grass (*Anthoxanthum odoratum*), annual meadow grass *(Poa annua)* and small-leaved Timothy-grass *(Phleum bertolonii).*	Very few neutral semi-improved and species poor grasslands have noteworthy plant diversity. However, these habitats can provide cover and foraging for terrestrial invertebrates and small mammals and foraging bats and bird species.
Poor Semi-improved Grassland	Poor semi-improved grassland includes; perennial rye-grass (*Lolium perenne*),red fescue, cock's-foot, Yorkshire fog, creeping bent and false oat-grass.	
Tall Ruderal and Bracken	Small areas of tall ruderal are located within the survey area and species include; common nettle, rosebay willow-herb, great willowherb, creeping thistle common ragwort, broad-leaved dock and curled dock. An area of bracken *(Pteridium aquilinum)* was observed within the wider survey area, which showed invasive signs.	Although these habitats comprise of a small areas they provide a more diverse range of habitats throughout the site. They can provide habitats for terrestrial invertebrates which in turn provide foraging for other species such as small mammals including hedgehog, foraging bats and birds. Larger areas of tall ruderal may provide suitable breeding bird habitat. Bracken can show invasive signs and out-compete other native flora resulting in monoculture stands of vegetation. Tall ruderal areas are not particularly species rich but they do contain flora species which are valuable for terrestrial invertebrates. For example common ragwort supports the cinnabar moth *(Tyria jacobaeae)* a UK Priority Species, which is marked as declining by 83% in the UK over the last 35 years.
Introduced Shrub		

	Introduced shrub is by far the most common habitat encountered within the survey area and is mainly present within planted borders. Introduced shrub and planted species include; cotoneaster sp (*Cotoniaster sp*.), buddleia (*Buddleja davidii*), snowberry (*Symphoricarpos rivularis*), rose sp (*Rosa sp*), maple sp (*Acer sp),* purple maple sp (*Acer sp*), dogwood (*Cornus sanguinea*), variegated dogwood sp (*Cornus sp*), Lady's-mantel (*Alchemilla vulgaris agg*), rhododendron sp (*Rhododendron sp*), conifer sp, primula sp (*Primulaceae sp*), fern sp, lavender sp (*Lavandula sp),* red-hot pokers (*Kniphofia uvaria*), red robin (*Photinia x fraseri*), privet, guelder-rose (*Viburnum opulus*), berberis *(Berberis sp*), purple berberis (*Berberis sp*), peonies sp (*Paeonia sp*), allium sp (*Allium sp*),ornamental grass sp, bamboo (*Phyllostachys*	Introduced shrub is not a habitat of local concern although certain species have an invasive nature and may even be a threat to native biodiversity if not regularly managed. Part 2 of Schedule 9 of the Wildlife and Countryside Act 1981 contains a list of plant species that are prohibited under Section 14, from planting in the wild or otherwise causing them to grow there. This aims to prevent non-native establishment of species which may be detrimental to our native wildlife. Species listed under the schedule include; giant hogweed (*Heracleum mantegazzianum)*, Himalayan balsam (*Impatiens glandulifera*) and Japanese knotweed *(Fallopia japonica)* alongside other species such as false-acacia (*Robinia pseudoacacia)*, cotoneaster species and rhododendron species. Nonetheless, introduced shrub may provide suitable habitat for terrestrial invertebrates, cover and foraging for small mammals, foraging for bats and birds and breeding habitat for bird species.
Boundaries (Hedgerows/ Fencing/Walls)	The survey area contains several hedgerows which are generally species poor, some of which appear to have been planted. No species-rich hedgerows were noted with the survey area. Hedgerow species include holly (*Ilex aquifolium*), common hawthorn, common beech, copper beech, variegated privet (*Ligustrum argenteum*), variegated holly (*Ilex x altaclarensis*), cherry sp, sycamore, cherry laurel (*Prunus laurocerasus*) and honeysuckle (*Lonicera periclymenum*).	The hedgerows found within the survey area are species poor and relatively young age being linked to recent landscape planting. They therefore are not protected under the Hedgerow Regulations 1997. Hedgerows are valuable habitat for terrestrial invertebrates, breeding and foraging birds. They also form important features for commuting and foraging bats.

10. Appendix 3: Document History

Date	Author	Version	Description of modifications
16/01/13	C.Challen	0.1	Initial draft of document issued for review.
05.03.13	C.Challen	1.0	Minor changes to action plan following consultation and meeting
March 14	C.Challen	2.0	Changes to action plan
June 15	C.Challen	3.0	Changes to action plan, section 7.0 Added Document Control
April 17	C. Engl	3.1	Changes to action plan, section 3.1 Changes to Document Control
July 17	C. Engl	3.2	New five year plan 2017/18 – 2022/23 Action Plan removed – this will be contained in a new Landscape Plan which is based on the biodiversity principles and objectives contained within this plan.
August 17	C.Engl	4.0	Reviewed by D. Genther