



Grounds Maintenance and Conservation Plan March 2011- 2016

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UEA GROUNDS MAINTENANCE AND CONSERVATION PLAN CONSULTATION DRAFT 28.03.11

FOREWORD BY MARTYN NEWTON, SUSTAINABILITY MANAGER

Since 2009 we have been managing all our environmental impacts through the development and implementation of an Environmental Management System. Maintaining and improving biodiversity is a key objective of this work and we aim to make sure that our 145 ha (360 acre) campus continues to be a place where biodiversity can flourish and knowledge and understanding of our local biodiversity can excel.

This plan is central to achieving this aim and has been developed in collaboration with our Grounds Department and School of Biological Sciences. Its implementation will make sure we are all working to the same goals. It sets out clear management principles for all at UEA to follow and respect.

The completion of our biodiversity audit in July 2011 is anticipated with excitement. The ability to disseminate its findings and share information on the rich habitats and rare species we have on campus will be a real asset. We will also be able to set reliable improvement targets so we can monitor progress and ensure we are using our resources to achieve the best results for biodiversity.



1. INTRODUCTION

The primary aims of the Grounds Maintenance and Conservation Plan (GMC) are to:

- Provide a coordinated and inclusive process for the comprehensive management of the UEA main campus grounds
- Operationalise the strategic policies of the UEA Landscape Strategy (www.uea.ac.uk/estates/construction/Landscape); in particular, Strategic Policy 6 'protect and enhance biodiversity' (see Appendix 1)
- Meet the environmental policy goal of maintaining and enhancing the biodiversity of the estate (www.uea.ac.uk/estates/environmentalpolicy)

This GMC is also set within the framework of the Environmental Management System (EMS) which ensures it is appropriately resourced, regularly audited and reviewed, and staff are given appropriate training to deliver the required actions.

The plan has been based on a detailed evaluation of the current state of habitats across campus. The assessment has been made against the requirements to:

- ⊙ Protect biodiversity by maintaining habitat health and quality and the associated biodiversity over the long term; and,
- ⊙ Enhance biodiversity by improving habitats to maximise biodiversity.

The plan is intended to be a working document allowing flexibility within our ever changing, unique natural environment and detailed ecological survey work is ongoing to inform its future development.

The GMC will achieve its primary aims by establishing a set of management principles to direct action; and, developing individual management plans for prioritised habitats across the estate. Habitats have been prioritised (applying a simple traffic light system) based on habitat decline and nature conservation and educational/amenity value.

This plan will undergo consultation with experts and other stakeholders in order to develop robust and sustainable outcomes. Consultees are listed in Appendix 2.

The plan is divided into four sections:

- Habitats and species – this section outlines the biodiversity baseline and the zoning criteria
- Management principles – set out the general management principles to be applied across the estate
- Measuring, monitoring and reporting – sets out the relationship of the GMC with the EMS and outlines how performance will be assessed
- Management plans - details the management specifications for prioritised habitats

2. HABITATS AND SPECIES

The habitats on campus are broadly similar to the character areas of the landscape strategy. Boundaries may differ where habitats have changed over time and the edges have been redefined. New boundaries have also been created where specific management plans are required e.g. Water Soldier Pond and DEV Hay Meadow.

Monitoring of habitats and species is ongoing in order to understand the value of biodiversity across the estate (see section 4). A semi-comprehensive biodiversity assessment was undertaken in 1987 (A natural History of UEA, by Dr Gibson, BIO), and for several years Dr Iain Barr (BIO) has been collecting data on several taxa to compare against this¹. Led by Dr Barr, expert staff and students from BIO commenced a biodiversity audit in March 2010; detailed surveys are being conducted of all vertebrate species (excluding fish) and several major groups of invertebrates and plants. Representative surveys of other taxa are also being conducted in specific habitat blocks. An assessment of all BAP species and habitats is also underway. An interim report is available at: <http://www.uea.ac.uk/estates/environmentalpolicy>.

This work has provided a baseline understanding of habitat condition and conservation and educational/amenity value against which habitats have been prioritised. Prioritising habitats allows for the views and needs of various stakeholders and the effective distribution of resources. By implementing a simple traffic light system, a management process is established which enables the effective two-way communication of issues between grounds maintenance and projects office staff and the various user groups and other stakeholders. It has significant value in awareness raising. The system also facilitates decision making in relation to campus development by clearly demarcating areas of significance for biodiversity. The map in Appendix 3 details the proposed zones.

¹ Section 5.1 UEA IER, Oct 2009 www.uea.ac.uk/estates/environmentalpolicy/IER

The Traffic Light System

| | Designation criteria | Action | Implementation Process |
|--------------|--|--|---|
| Red | Habitats of ecological conservation significance, or which support BAP species (Appendix 4). | Detailed management plans to be produced. | Consultation to be sought before works commence. Establish process of communication. |
| Amber | Areas where temporary issues may be of concern e.g. nesting birds, construction site compounds. Transition areas between conservation and amenity use. | Management plans to be produced. | Consider timing of works for planned jobs. Check areas prior to works for reactive jobs – (staff training required). Establish review process for Construction and refurbishment works. Establish process of communication. |
| Green | Areas of amenity value. | Apply general management principles. No consultation required. | Training for grounds staff |

3. MANAGEMENT PRINCIPLES

The general management principles set out here establish the routine working practices for grounds maintenance and conservation.

- Make UEA a pleasant and enjoyable place to work and study
- Maintain habitat health and quality and associated biodiversity by the strategic management of the habitats across campus
- Improve biodiversity where possible
- Plan, cost and build to encourage biodiversity by selecting environmentally friendly, local building materials (e.g. lime mortar, local stone) and sympathetic design (e.g. green roofs, artificial shelters for bats, birds and invertebrates), and reducing intrusive lighting
- Soften the transition areas between conservation and amenity use on campus through the appropriate use of planting using native species
- Plant only native species (of local provenance where possible) in red and amber zones
- Only using chemicals for specific, justifiable actions, i.e. sports pitches, management of invasive species, willow scrub clearance; ensuring compliance with the Water Resources Act 1991
- Apply low intervention horticulture and the use of sustainable materials (e.g. avoid peat based products, non FSC/PFEC timber and limestone etc.)

4. MEASURING, MONITORING AND REPORTING PERFORMANCE

The GMC is set within the wider EMS currently being implemented across the UEA. The EMS is designed to ensure that all activities which can have an environmental impact, or are associated with the utilisation of a particular resource, are undertaken in a controlled manner and at minimal risk to the environment and the UEA. In relation to biodiversity this means measuring, monitoring and

reporting on performance, as well as implementing procedures to ensure resources are secured, staff are trained, and links are made with other management processes across UEA, e.g. campus development and refurbishment and land management by tenants.

Biodiversity specific objectives and targets have been set within the UEA Environmental Programme (see <http://www.uea.ac.uk/estates/environmentalpolicy>) and are reviewed annually by the Sustainability Board to ensure continual improvement.

Responsibility for implementing this plan lies with the Sustainability Manager who has established a Biodiversity Special Interest Team within the overall EMS management structure to drive biodiversity specific actions (see Appendix 5). The Grounds Manager is responsible for ensuring compliance with the plan at a day to day operational level. Through the EMS, practice across the UEA will be audited to ensure compliance with the stated management principles and plans.

4.1 MEASURING AND MONITORING

Measuring and monitoring biodiversity enables the UEA to evaluate its performance over time, identify and address problem areas and exploit opportunities, improve performance, ensure legal compliance and increase efficiency. A summary of the ecological monitoring programme² is provided below.

Summary Ecological Monitoring Programme

| Survey Type | Details | Species Monitored |
|--------------------------|--|--|
| Biodiversity survey 2010 | Conducted over an 18 month period this survey aims to provide baseline data on species across campus and includes an assessment of all BAP species and habitats. Survey to be repeated every 10 years. | Birds, bats, mammals, amphibians, reptiles, dragonflies and damselflies, butterflies, moths, beetles and plants |
| Annual surveys | Fixed transect routes and quadrats surveyed across campus | BAP species, butterflies, dragonflies, birds and grassland plants, |
| Managed areas | For areas where management is ongoing, surveys will be undertaken annually for 5 years and then biannually. Reviewed after every decennial biodiversity survey. | Survey dependent on habitat: Birds, bats, mammals, amphibians, reptiles, dragonflies and damselflies, butterflies, moths, beetles and plants |

In order to apply the first management principle to, 'make UEA a pleasant and enjoyable place to work and study' a bi-annual stakeholder satisfaction survey (including grounds staff, students, users and volunteers) will be undertaken to measure and monitor the perceptions of users as management of these areas progresses. Biodiversity will also be a regular agenda item for monthly grounds staff meetings, covering issues such as nesting birds, notable sightings and training.

4.2 INDICATORS

Impact on biodiversity can be very hard to quantify and requires strong scientific data. Translating this data to demonstrate performance improvement requires the use of indicators. Ecological indicators will be set once the first years monitoring data has been collated and reviewed. These will be standardised so as to contribute to national and regional monitoring databases e.g. Norfolk Biological Information Service (NBIS). Potential indicators are:

- Detection or re-detection of listed species and targeting other species on the BAP- i.e. ants, beetles, hoverflies etc.
- Populations of invertebrates (e.g. dragonflies) as water habitat quality indicators.

² A copy of the full monitoring programme is available at <http://www.uea.ac.uk/estates/environmentalpolicy>

- Plant species diversity at fixed quadrats.
- Birds as general indicators of habitat quality.

The effectiveness of activities, operations and decisions will be monitored, audited and reviewed through the EMS and appropriate management performance indicators established.

4.3 REPORTING

Reporting this performance allows UEA to engage with its stakeholders more effectively and demonstrates accountability, transparency and improvement. Once we have set our targets we will report specific performance against these. A comprehensive annual report will be published (with biannual reporting on customer satisfaction) and regular updates, case studies and the on-going views of our stakeholders provided on the UEA Environment and Sustainability web pages (<http://www.uea.ac.uk/estates/environmentalpolicy>). Our monitoring data will also inform on-going site interpretation.

5. MANAGEMENT PLANS

5.1 RED ZONE MANAGEMENT PLANS

UNIVERSITY FEN AND BLUEBELL MARSH

| | |
|---------------------------|--|
| Map reference: | 2 |
| Conservation designation: | County Wildlife Sites (ref nos. 1147 and 1145) |
| Outcome: | Restore and maintain the acreage of fen with sections of high quality reed bed, sedge bed, wetland edges and a healthy dyke system |
| Short term action: | Management of encroaching scrub and restoring traditional reed cutting on 5 year rotational basis |
| Long term action: | review 2014 |

BUTTERFLY MEADOW

| | |
|---------------------------|--|
| Map reference: | 3 |
| Conservation designation: | County Wildlife Site (ref no. 1448) |
| Outcome: | Increase the area of nutrient poor chalk grassland |
| Short term action: | Clear scrub to mature tree line (5 year rotation). Restore gorse plants to attract insects |
| Long term action: | Clear scrub every 5 years on rotation |

THE BROAD ISLAND AND ANTI-SCRAPE

| | |
|---------------------------|---|
| Map reference: | 14 |
| Conservation designation: | Part of The Broad County Wildlife Site (ref no. 1449) |
| Outcome: | Maintain woodland and restore bank margins |
| Short term action: | Coppice selected trees, remove wood and maintain bank |
| Long term action: | Review opportunities for management of Broad Island and restoring the |

anti-scrape e.g. willow bunding

SAINSBURY CENTRE WOOD (THE HERONRY AND VIOLET GROVE)

Map reference: 11

Conservation designation: Part of County Wildlife Site (ref no. 1446)

Outcome: Maintain healthy woodland

Short term action: Leave to develop. Regularly check for and manage invasive species

Long term action: Monitor access and related disturbance

NEW PLANTATIONS

Map reference: 4

Conservation designation: None

Outcome: Maintain healthy woodland

Short term action: Selective thinning of non-native and unstable trees

Long term action: Develop glades and rides

NEW PLANTATIONS HAY MEADOW

Map reference: 5

Conservation designation: None

Outcome: Maintain summer meadow

Short term action: Maintain hay meadow (cut late Aug/early Sept) and specimen trees

Long term action: Review 2020 after decennial biodiversity survey

WATER SOLDIER POND

Map reference: 1

Conservation designation: None

Outcome: Maintain nutrient poor pond

Short term action: Coppice willow, leaving 50% of individuals. Dredge on rotation over 3 years

Long term action: Do not allow mature trees to develop. Review 2015

5.2 AMBER ZONE MANAGEMENT PLANS

THE BROAD

| | |
|---------------------------|--|
| Map reference: | 15 |
| Conservation designation: | County Wildlife Site (ref no. 1449) |
| Outcome: | Maintain mesotrophic character |
| Short term action: | Maintain Edge and control invasive species (see also 14) |
| Long term action: | Monitor water quality. Enhance vistas in line with the Landscape Strategy. |

THE HAY MEADOWS

| | |
|---------------------------|---|
| Map reference: | 9 |
| Conservation designation: | None |
| Outcome: | Maintain as a mosaic of spring/summer/autumn meadow |
| Short term action: | Cut annually Aug/Sept. Maintain designated paths for cars and amenity areas |
| Long term action: | Review usage and management in 2015 |

RIVER YARE

| | |
|---------------------------|--|
| Map reference: | - |
| Conservation designation: | None |
| Outcome: | Minimise bankside erosion and maintain character of river |
| Short term action: | Maintain bankside vegetation according Environment Agency requirements and best practice (BTCV Handbook) |
| Long term action: | Review 2020 after decennial biodiversity survey |

LUSTY HILLS AND DEV HORSE FIELDS

| | |
|---------------------------|---|
| Map reference: | 6 |
| Conservation designation: | None |
| Outcome: | Maintain floristic diversity in line with grazing |
| Short term action: | Work in partnership with tenants to maintain grazing and prevent mowing. Maintain hedges and specimen trees |
| Long term action: | Review usage and management in 2015 |

INSTITUTE FIELDS (WET GRAZING MEADOWS)

| | |
|---------------------------|---|
| Map reference: | 8 |
| Conservation designation: | None |
| Outcome: | Maintain wet grazing meadow |
| Short term action: | Work in partnership with tenants to regularly check and maintain dykes and scrapes and maintain grazing |
| Long term action: | Review 2020 after decennial biodiversity survey |

BLACKDALE PLANTATION

| | |
|---------------------------|---|
| Map reference: | 10 |
| Conservation designation: | None |
| Outcome: | Maintain healthy woodland |
| Short term action: | Maintain litter and edges, develop understorey vegetation. Control invasive species |
| Long term action: | Develop educational use |

COW DRIVE

| | |
|---------------------------|--|
| Map reference: | 12 |
| Conservation designation: | None |
| Outcome: | Maintain balance between access and wildlife |
| Short term action: | Manage hedgerow margins as wildflower corridor. Cut short a 1m amenity strip along length of path. Cut hedge in winter months. |
| Long term action: | Review 2020 after decennial biodiversity survey |

SPANISH COPSE

| | |
|---------------------------|--|
| Map reference: | 13 |
| Conservation designation: | None |
| Outcome: | Maintain copse |
| Short term action: | Maintain trees and cut after bluebells have flowered |
| Long term action: | Review 2020 after decennial biodiversity survey |

SPORTS FIELDS HAY MEADOWS

| | |
|---------------------------|---|
| Map reference: | 7 |
| Conservation designation: | None |
| Outcome: | Maintain as summer meadow |
| Short term action: | Maintain hay meadow (cut late Aug/early Sept) |
| Long term action: | Review 2020 after decennial biodiversity survey |

RESEARCH AMENITY LAND (MIXED USE)

Map reference: 16

Conservation designation: None

Outcome: Maintain for research use

Short term action: Cut annually (late spring/early summer) if required

Long term action: Review 2020 after decennial biodiversity survey

DEV FARM

Map reference: 17

Conservation designation: None

Outcome: Maintain healthy woodland

Short term action: Manage invasive species

Long term action: Review 2020 after decennial biodiversity survey

APPENDIX 1: UEA LANDSCAPE STRATEGY STRATEGIC POLICY 6

PROTECT AND ENHANCE BIODIVERSITY

OBJECTIVES

- Maximisation of biodiversity throughout the Campus and at all levels and raising awareness of the significance of the wildlife resource across the entire estate.

FUNCTIONAL ELEMENTS

- 6.1 Undertake monitored management of the County Wildlife sites, to a management plan prepared by or for the University, to enable quantitative assessment of the success of the management plans
- 6.3 Creation of no-go areas within sensitive areas of particularly high wildlife value, such as the County Wildlife sites, where access is discouraged by discreet and non-visually intrusive measures – a Biodiversity Strategy.
- 6.4 Encouragement of nesting and roosting sites for birds, bats and other wildlife on campus, through the introduction of nest boxes or incorporation of habitat features

QUALITATIVE IMPROVEMENTS

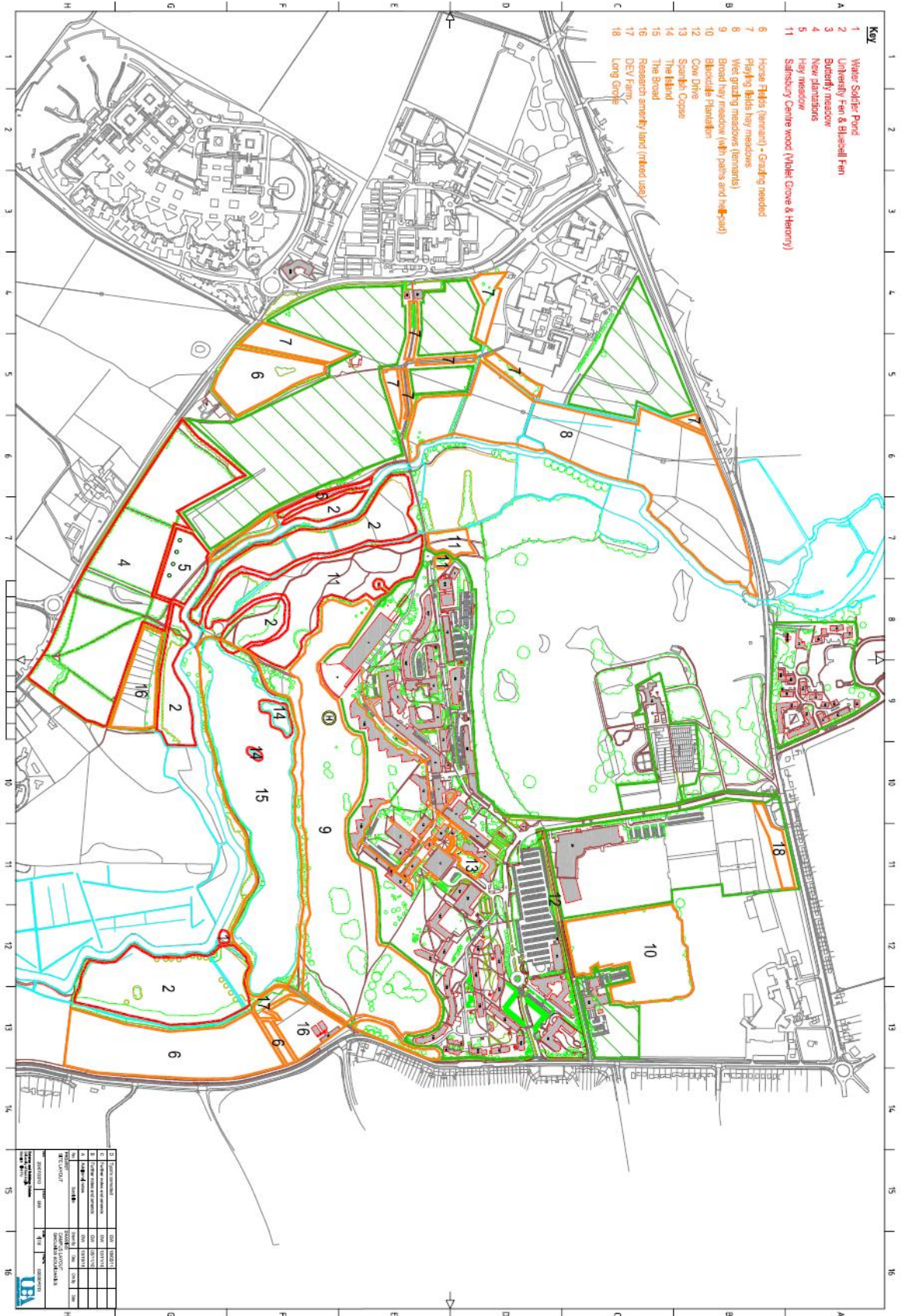
- Satisfactory management of existing natural resources
- Creation of an awareness by the public of the need for, and benefits of, appropriate ecological management, through interpretation of features of interest and utilization of the Campus as an educational resource.

APPENDIX 2: CONSULTEES

Centre for Ecology, Evolution and Conservation (CEEC)
Conservation Wildlife Society
EDU outdoor learning group
Friends of Earlham and Eaton Park
Norfolk Biodiversity Partnership
Norfolk County Council
Norfolk Wildlife Trust
Norwich City Council
Norwich Fringe
RSPB
South Norfolk District Council
Tenants
UEA Students Union
UEA Volunteers/Campus Conservation Project

The plan will also be made available at www.uea.ac.uk/estates/environmentalpolicy for anyone who wishes to comment on the consultation draft.

APPENDIX 3: ZONED ESTATE MAP

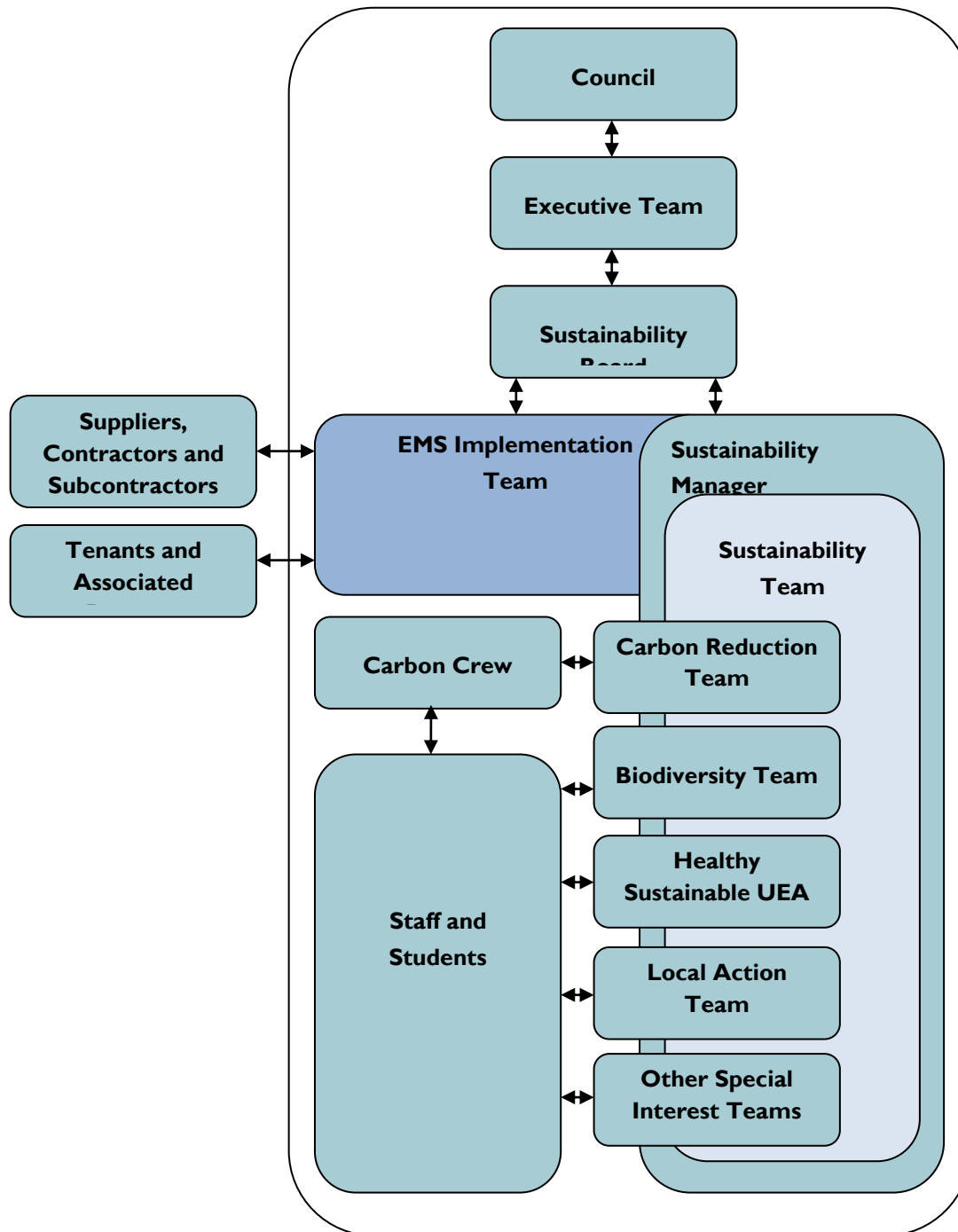


APPENDIX 4: BAP PRIORITY SPECIES FOUND ON CAMPUS

BAP Species known from or suspected from UEA campus (underlined species are recent 100% confirmed records)

| | | |
|---|--|---|
| <p>Lepidoptera: <u>Grey dagger (3 records)</u> <u>Green brindled crescent (2 records)</u> <u>Knot grass (4 records)</u> <u>Ear moth (2 records)</u> <u>Mouse moth (6 records)</u> <u>Garden tiger (common)</u> <u>Crescent (common on fens)</u> <u>The streak (common)</u> <u>Small square spot (common)</u> <u>Small phoenix (common)</u> <u>September thorn (common)</u> <u>Dusky thorn (6 records)</u> <u>August thorn (common)</u> <u>Garden dart (4 records)</u> <u>Marbled White spot (3 records)</u> <u>Small emerald (3 records)</u> <u>Grayling-butterfly (4 records)</u> <u>Brindled beauty (common)</u> <u>The lackey (2 records)</u> <u>Dot moth (common)</u> <u>Rosy minor (common)</u> <u>Shoulder striped wainscot (7 records)</u> <u>Lunar yellow underwing (not recorded 2009-10)</u> <u>Common fan foot (Not recorded 2009-10)</u> <u>White ermine (common)</u> <u>Buff ermine (common)</u> <u>Blood vein (8 records)</u> <u>Pale eggar (3 records)</u> <u>The cinnabar (common)</u> <u>Oak hook tip (common)</u> <u>The swallow (common)</u> <u>Dark barred twin spot carpet (common)</u></p> | <p>Birds: <u>Skylark (occasional use of habitat)</u> <u>Bittern (winter use and occasional summer visits)</u> <u>Lesser redpoll (common in winter)</u> <u>Lesser spotted woodpecker (not recorded 2010- past breeder)</u> <u>Reed bunting (common resident in fen areas)</u> <u>Herring gull (common loafer)</u> <u>Grasshopper warbler (1-2 pairs breed annually)</u> <u>Spotted flycatcher (no pairs 2006-9, 1 pair in 2010)</u> <u>House sparrow (commonly uses campus no breeding recorded)</u> <u>Willow tit (once common none since 2007)</u> <u>Marsh tit (common breeding resident)</u> <u>Hedge accentor (very common breeding resident)</u> <u>Bullfinch (<10 pairs breed annually)</u> <u>Starling (common breeding resident- up to 1500 gather)</u> <u>Song thrush (common resident)</u> <u>Ring ouzel (passage 2 recent records)</u></p> | <p>Fish <u>European eel (very common in river and broad)</u></p> <p>Herptiles (Amphibians and reptiles) <u>Slow worm (common in wood edge)</u> <u>Common toad (common)</u> <u>Grass snake (common)</u> <u>Great crested newt (no recent records)</u> <u>Common lizard (few recent records)</u></p> <p>Mammals <u>Water vole (once common now only 1 record in 2009)</u> <u>Hedgehog (common)</u> <u>Brown hare (occasional)</u> <u>Otter (becoming common)</u> <u>Noctule bat (common)</u> <u>Common pipistrelle (common)</u> <u>Soprano pipistrelle (common)</u> <u>Brown long eared bat (common)</u> <u>Daubentons bat (common)</u></p> |
| <p>Odonata: <u>Norfolk hawker (1 ovipositing 2009)</u></p> | | |
| <p>Priority Habitats Hedgerows Lowland calcareous grasslands Lowland fen Lowland meadow Lowland mixed deciduous Woodland Mesotrophic lakes Ponds Reedbeds Rivers Wet woodland Wood-pasture and parkland</p> | <p>Plants None</p> | |
| <p>Other species will be added once confirmed. 2008/9 was a particularly poor with respect to insects and fungi</p> | | |

APPENDIX 5. EMS MANAGEMENT STRUCTURE



REFERENCES

- BitC (2009) UTC Environment Index guidance notes
 BTCV Handbooks. Accessed 11.11.10 <http://handbooks.btcv.org.uk/handbooks/index>.
 EAUC (undated) Managing Biodiversity on Campus: An EAUC Practical Guide. Accessed 23.02.09
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<http://www.uea.ac.uk/estates/construction/Conservation>