Biodiversity Policy 2014 – 2020

1. Ambition

This is the second Biodiversity Policy and supports one of the University’s four ambitions in the Strategy 2020:

**Ambition: Achieving resilience, sustainability and effectiveness**

*We aim to build on our existing position as a leading UK university in sustainability by striving for excellence in financial, environmental and social responsibility across all of our activities.*

Plymouth University is an intensely occupied compact urban campus, with dense development on one main site. Because of this the University campus is under biodiversity pressure since the past years have seen increased development on Greenfield spaces. This has happened since the late Professor Roland Levinsky began a policy of centralising its campus activities in Plymouth, thus seeing the development of the Roland Levinsky, Rolle, and Francis Drake Halls of Residence buildings.

2. Aim

The aim for this Policy from the action point under Goal 1 ‘A sustainable university’ in the Sustainability Strategy 2014:

- Maximise biodiversity on campus and find opportunities to create green environments.

3. Responsibility

Responsibility for this policy rests with the Department of Procurement and Sustainability and the Centre for Sustainable Futures, reporting to the OVC Sustainability Executive and Advisory Group, Office of the Vice Chancellor, Chief Executive Group and Board of Governors.

Plymouth University recognises that biodiversity is of utmost importance in social, economic and environmental factors, but also wellbeing and understanding the value of nature. As the university has a focus on sustainable development, through research and education, biodiversity thus has to be fully incorporated into both the communities and student’s learning and experience.
The action plan will be monitored at least termly within the Biodiversity Steering Group, who will also produce an annual report. The Sustainability Executive Group will review the annual report and the action plan on an annual basis.

4. Objectives

1. Measure and manage biodiversity levels and report on progress to the Sustainability Executive

2. Maximise biodiversity on campus wherever possible, and find opportunities to create green space

3. Maximise biodiversity education on campus, and utilise the outdoor space for formal and informal learning by students, staff and the community

4. Incorporate biodiversity practices into development strategies and materials purchasing to protect green spaces and biodiversity levels on campus

5. Monitoring of the policy objectives

To monitor the impact on biodiversity on campus species monitoring will need to be conducted. Although it is acknowledged this is a challenging task, this policy recommends it to take place on three levels:

1. Landscape level – trends in landscape diversity, habitat availability, landscape elements.
2. Community or ecosystem level – management actions or natural disturbances, functions, and level of protection of areas for species richness.

The monitoring should incorporate species richness, species evenness, disparity, rarity, and genetic variability. It should be mapped on Geographical Information Systems (GIS) software to be monitored against. GIS manages data relating to geographic areas, and can be used to digitally manipulate environments. It is recommended in the action plan that a survey is conducted every two years.

The most recent biodiversity survey was conducted in 2005, and this totalled 181 plant species, within Drakes Garden, the campus walls, and trees planted. There were also a further 55 species within the Student Village site (see Appendix A). However, since 2005, the campus has undergone a considerable amount of development, which results in these figures being inaccurate.
There are approximately 15 Tree Preservation Orders, all of which along Portland Villas, and under the responsibility of the Building Maintenance Manager, in E&F and Facilities Management (E&FM).

6. Recommendations

The Biodiversity Steering Group should consider the feasibility of implementing the following strategies and operations.

- **Bird and bat boxes** are technically feasible and selected sites should take place in proximity to natural flora, and close to food sources. Recommended areas include the trees along Portland Villas.
- **Small timber stacks** should be created by leaving dead wood in piles. This should be implemented wherever possible in sheltered regions, to increase small insect and animal life.
- **Insect boxes** should be constructed with bamboo tubes to provide habitats and be used for educational uses.
- **Planters** should be used to increase biodiversity on campus and should include native and threatened species within them. Recommended species for planters include *Agave Americana*, *Agave neomexicana*, *Phormium sp.*, *Chamaerops humils*, *Astelia chathamica*, *Stipa temussima*, *Rubbekia hirta* and *Echinacea purpurea* as they can cope with drought and require little attention.
- **Hanging baskets** should be introduced to buildings and lampposts which are suitable for this. In other areas, hanging baskets from freestanding frames should be investigated.
- **Green roofs** should be encouraged wherever possible, and trialled with available grants. Although the majority of buildings on campus are not designed for roof gardens due to their stability and infrastructure, this should be considered for any future developments on campus. The University should thus investigate a feasibility study into the possibility of green roofs.
- **Vertical gardening** should be promoted through climber plants along building walls where the infrastructure is in place, or can be put in place. This has been identified to be along the east of Scott building, but can also be situated indoors, in well-lit areas such as in Portland Square. Climber plants generally require little formal maintenance to thrive and quickly cover areas.
- **Indoor plants** introduced in office and communal areas. They have a number of benefits, which include removing harmful contaminants from the air, controlling humidity, increasing positive feelings, and reducing anxiety anger and stress, as well as sound and carbon dioxide.
- **Onsite composting** should be investigated, with potential being identified in Drake’s Place. Food waste from the kitchens and plant waste from campus is currently taken offsite as part of our waste contract.
- **Peat free compost** should be mandated and a viable alternative recommended.
- **Micro greenbelts** should be investigated ring fenced to prevent the loss of any more green space to campus development.

The following is guidance for species selection:

- **Perennials** are the favoured plant type when planting in new areas. These survive all year round, and live for longer periods of time, compared to annuals (which only live one year). They bloom over spring and summer, and contain a wide variety of species to enhance diversity. They are reliable in guaranteeing colour, and only require annual maintenance.
- **Microclimates** should be taken into consideration when selecting species to provide a rich and varied environment. Campus Map A shows microclimates caused by wind, sunshine, heat, and shade.
- **Tree plantation** is encouraged wherever possible, due to the environmental benefits of providing a large carbon sink. Interesting species for conservation and study, recommended from a previous biodiversity report on campus have been suggested.
- **Tree Preservation Orders** should be maintained and respected. The Building Maintenance Manager holds these within E&FM.
- **Flora which attracts small animal and bird life** should be included to further provide rich biodiversity, and thus cause a symbiotic relationship between plans and animal life.
- **Species able to be managed sustainably** should be selected, and should reflect Plymouth and the south west’s biological links.
- **Chemical use** should be minimised, trialling of new chemicals should be adopted, which require longer periods before re-spraying. Also, research into more environmentally sustainable methods should be investigated, such as creating symbiotic relationships between a variety of flora and fauna.
- **No-mow areas** to increase species diversity should be continued along west bank and the reservoir. Wherever possible, further areas should be established, but still managed.
- **Materials sourcing** should continue to take environmental factors in to account.

The following is guidance for education:

- **Publicise species** through placards or similar near to, or on flora, using environmentally-friendly tags to provide information about the species and origin for students and wider community. Further information should be provided through digital media, such as a geo trail.
- **Education** should be further incorporated into campus biodiversity through promoting the use of the Physic Garden and Skardon Garden.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Action</th>
<th>Date</th>
<th>Responsibility</th>
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</table>
| Measure and manage biodiversity levels and report on progress to the Sustainability Executive | - The number of animal and plant species to increase compared to 2011 data  
- Freshwater ecology in the reservoir to increase compared to 2011 data  
- No development shall take place on current areas of green space and the amount of green space is retained compared to 2011 data | 2015  | E&F / Biodiversity Group    |
| Carry out a survey every two years to measure:                           | - The number and species of plants and animals  
- The amount of green space (m²)  
- The levels of freshwater ecology in the reservoir  
- Detail a full campus species list to be mapped on Geographical Information Systems (GIS) software | 2015  | E&F                         |
| - Establish a Biodiversity Committee with cross institutional representation including CSF, P&S, academics, students and E&F that reports key recommendations and points of action to the University’s Sustainability Executive Group | 2014  | CSF                         |
| - Produce an annual biodiversity report and review at the Biodiversity Campus group and review with the Biodiversity Policy at the Sustainability Executive Group | Annual | E&F / Biodiversity Group    |
| Maximise biodiversity on campus wherever possible, and find opportunities to create green space | - Audit of space on campus to identify additional space for growing  
- Select new plant species to attract small animal and bird life  
- Increase numbers of planters and potentially hanging baskets and | 2015  | E&F / Biodiversity Group    |
<p>|                                                                           |                                                                           | Ongoing | E&amp;F / Landscape              |</p>
<table>
<thead>
<tr>
<th>Task</th>
<th>Responsible Parties</th>
<th>Start Year</th>
<th>End Year</th>
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<tbody>
<tr>
<td>Introduce rainwater buts on campus to water the planters</td>
<td>E&amp;F / Landscape / E&amp;F</td>
<td>2015</td>
<td></td>
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<td>Develop potential growing areas with Halls of residence</td>
<td>E&amp;F / CSF / UPP</td>
<td>2017</td>
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<td>Fit insect boxes in shrub beds around campus and provide timber</td>
<td>E&amp;F / Landscape</td>
<td>2015</td>
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<td>Plant perennials as a basis of display in raised planters and</td>
<td>E&amp;F / Landscape</td>
<td>Ongoing</td>
<td></td>
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<tr>
<td>Select no-mow areas</td>
<td>E&amp;F / P&amp;S</td>
<td>2016</td>
<td></td>
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<td>Carry out a feasibility study and introduce recommendations on green</td>
<td>P&amp;S / Biodiversity Group</td>
<td>2015</td>
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<td>Mandate the use of peat free compost</td>
<td>E&amp;F / P&amp;S</td>
<td>2015</td>
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<td>Investigate the feasibility onsite composting of garden waste</td>
<td>E&amp;F / E&amp;F</td>
<td>2014</td>
<td></td>
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<tr>
<td>Investigate the feasibility of bee keeping on campus</td>
<td>E&amp;F / E&amp;F / CSF</td>
<td>2015</td>
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<tr>
<td>Promote the sustainable education use of the Physic Garden, Drakes</td>
<td>ER / CSF</td>
<td>Ongoing</td>
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<tr>
<td>Provide a PU allotment and run allotment group – leased through</td>
<td>UPSU / CSF</td>
<td>Ongoing</td>
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<tr>
<td>Investigate feasibility of introducing allotment space for students</td>
<td>CSF / E&amp;F / E&amp;F / UPSU</td>
<td>2015</td>
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<tr>
<td>Advertise Student Project Opportunities and recruit students to</td>
<td>CSF / UPSU</td>
<td>2015</td>
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<tr>
<td>Research into more environmentally sustainable products and keep</td>
<td>Biodiversity Group</td>
<td>2015</td>
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Maximise biodiversity education on campus, and utilise the outdoor space for formal and informal learning by students, staff and the community:

- Promote the sustainable education use of the Physic Garden, Drakes Place and other campus spaces for academic courses and informal learning by staff, students and community members.
- Provide a PU allotment and run allotment group – leased through PCC.
- Investigate feasibility of introducing allotment space for students on campus as part of student led group.
- Advertise Student Project Opportunities and recruit students to monitor species.
- Research into more environmentally sustainable products and keep herbicides to a minimum, using only for weed control on hard surfaces.
into development strategies and materials purchasing to protect green spaces and biodiversity levels on campus

| Surfaces. | Follow up on the above recommendations for campus use | E&F / Plandscape |
| Products sourced in a sustainable manner with products purchased to have a sustainability kite mark such as FSC Timber | Products sourced in a sustainable manner with products purchased to have a sustainability kite mark such as FSC Timber | E&F / Plandscape |
| Ensure grounds maintenance contract has an environmental assessment in place | Ensure grounds maintenance contract has an environmental assessment in place | E&F / Plandscape |
| Achieve Green Flag status for Drake’s Place | Achieve Green Flag status for Drake’s Place | 2015 ER / E&F / UCSP |

| E&F E&F and Facilities |
| CSF Centre for Sustainable Futures |
| UPSU University of Plymouth Students’ Union |
| ER External Relations |
| UCSP University Commercial Services Plymouth |
Appendices

Appendix A – List of Species on Campus (recorded in 2005)

A1 - Drakes Place and Reservoir

Acer campestre
Acer palmatum atropurpureum
Acer palmatum ssp.
Acer psuedoplatanus
Achillea millefolium
Aesculus hippocastanum
Bellis perennis
Bergenia purpurascens
Betula sp.
Buddleja davidii
Carpinus betulus
Centranthus ruber
Cerastium fontanum
Chenopodium album
Conzya canadensis
Corylus avellana
Cotoneaster horizontalis
Cotoneaster sp.
Epilobium montanum
Erica sp.
Erythrosperma sp.
Escallonia sp.
Fagus sylvatica
Fatsia japonica
Fraxinus excelsior
Fushia magellanica
Geranium pratense

Geranium robertianum
Hebe recurva
Hebe x franciscana
Hosta siboldii
Hydrangea anomala petiolaris
Hypericum andrusaemum
Iris sp.
Juniperus sp.
Linaria purpurea
Mellisa officinarum
Persicaria affinis
Physospermum cornubiense
Piéris echioes
Plantago lanceolata
Plantago major
Platanus x hispanica
Poa annua
Polygonum auiculare
Polystichum setiferum
Polystichum setiferum var. proliferum
Privet
Prunella vulgaris
Prunus domestica
Pyracantha coccinea
Ranunculus bulbosus
Ranunculus repens
Rubus fruticosus agg.
Rumex obtusifolius
Sagina procumbens
Salix matsudana "tortuosa"
Sasa palmata
Scrophularia nodosa
Senecio vulgaris
Silene dioica
Sonchus oleraceus
Sorbus aucuparia
Stachys byzantina
Stachys sylvatica
Stellaria media
Symbolaria muralis
Taraxacum officinale
Trifolium repens
Urtica urens
Viburnum sp.
Vinca minor
Viola riviniana
Wisteria sinensis
Yucca gloriosa

A2 - Halls of Residence (Student Village site)
Acer pseudoplatanus var.
Acer pseudoplatanus var.
Acer sp.
Almus cordata
Berberis dawinii
Berberis sp.
Berberis thunbergii
Buxus sempervirens
Callistemon citrinus
Choisya ternata
Conzya canadensis
Cotoneaster franchetii
Cotoneaster horizontalis
Cotoneaster salicifolius
Cotoneaster sp.
Elaeagnus sp.
Epilobium sp.
Equisetum arvense
Escallonia sp.
Escallonia sp.
Geum Urbanum
Hebe var.
Hebe X franciscana "varigata"
Hedera helix var.
Holcus mollis var. "albobariegatus"
Hypericum sp.
Hypericum tetrapterum
Ilex aquifolium
Ilex aquifolium "varigata"
Lonicera nitida
Mahonia X media var.
Oleaceae sp.
Pastinaca sativa
Peony officinalis
Phormium tenax
Phormium tenax "Rainbow Warrior"
Phormium tenax purpurea
Polystichum aculeatum
Prunus sp.
Rhus typhina
Ribes sanguineum
Rosmarinus officinalis
Senecio cineraria
Sorbus aria
Sorbus sp.
Synphorapcarpus albus

Tamarix ramosissima
Tilia X europaea
Viburnum davidii
Viburnum sp.
Viburnum tinus
Vicia cracca
Virginia Creeper
Weigela florida var.

A3 – Campus Walls
Asplenium trichomanes
Asplenium ruta-muraira
Asplenium adiantum-nigrum
Phyllitis scolopendrium
Ceterach officinarum
Bryum capillare
Tortula muralis
Fissidens adianthoides
Ceratodon purpurescens
Anaptychia ciliaris
Caloplaca flavescens
Cladonia impexa
Cladonia fimbriata
Caloplaca marina
Caloplaca saxicola
Caloplaca thalincola
Diploicia canescens
Hypogymnia physodes

Lecanora calcarea
Lecanora dispersa
Ochrolechia parella
Parmelia caperata
Parmelia subrudecta
Physcia adsendens
Tephromela atra
Umbilicaria polyphylla
Usnea ceratina
Xanthoria parietina
Cymbalaria muralis
Linaria purpurea
Centranthus ruber
Taraxacum officinale
Umbilicus rupestris
Hedera helix
Campanula poscharskyana
Geranium robertianum

A4 – Trees
Abies sp.
Acer campestre
Acer grosseri
Acer griseum
Acer palmatum var.
Acer palmatum var.
Acer platanoides
Acer platanoides var.
Acer pseudoplatanus
Acer pseudoplatanus var. Varigata
Acer saccharum
Acer saccharum var.
Aesculus hippocastanum
Almus cordata
Almus cordata var.
Almus glutinosa
Betula pendula
Betula pendula var.
Betula pendula pendula
Betula nigra
Betula utilis var. 'Jacquemontii'
Carpinus betulus
Cedrus atlantica f. glauca
Cordyline australis
Cordyline australis var.
Coryllis avellana
Cratagus sp.
Cratagus sp.
Cupressocyparis leylandii
Cupressocyparis leylandii var.
"Naylors Blue"
Eucalyptus gunnii

Fagus sylvatica
Fagus sylvatica var. (Fastigiate)
Fagus sylvatica var. (Purpurea)
Fraxinus excelsior
Ginkgo biloba
Griselinia littoralis
Ilex aquifolium
Laurus nobilis
Ligustrum lucidum
Magnolia sp.
Magnolia sp.
Malus domestica
Pinus mugo
Pittosporum tenuifolium
Pittosporum tenuifolium var.
Platanus x hispanica
Prunus cerasifera var.
Prunus domestica
Prunus dulcis
Prunus sp.
Prunus sp.
Prunus sp.
Prunus subhirtella var.
Quercus ilex
Quercus palustris
Quercus robur
Rhus typhina
Robinia pseudoacacia
Taxus baccata
Salix babylonica
Salix tortuosa
Sambucus nigra
Sorbus aria
Sorbus aucuparia
Sorbus sp.
Tilia cordata

Tilia x europea
Trachycarpus fortuneii
Viburnum sp.