Exemplary University Biodiversity Plans:
A Compilation With Notes

University of St Andrews Biodiversity Plan

Summary

The University of St Andrews has one of the most comprehensive biodiversity plans we found through our research. The plan consists of two core elements. The first is a detailed **biodiversity strategy** which provides context on biodiversity and outlines plan objectives. (Below is a summary of the structure and content of the biodiversity strategy.) The second is an **action plan** which lists all of the objectives in three main categories—habitats and areas, species, and teaching, research, communication & engagement—and their timespans, responsible parties, notes on progress made, and overall status. We think this two-component format is a good candidate to be adapted for our local biodiversity plan. The biodiversity strategy is a concrete document, while the action plan is a dynamic document that allows for adjustments to objectives and real-time updates. Perhaps the University could develop a live web-version of the action plan, as opposed to a pdf document, so all of the information on each objective would be publicly accessible and updates made could be available to view immediately.

Features from each document stood out and could be adopted in the University's biodiversity plan. The biodiversity strategy (summarized below) consists of two main sections and we found the content covered in each to be thorough. "Background" offers context including what biodiversity is, why it is important, stakeholders, and a summary of current efforts (a section which could be based on the memorandum written by Lauren DeCarlo "Biodiversity and Sustainability Efforts by the Local Governments of the UIUC Community"). "The Strategy" provides a summary of the plan including specific objectives, methods for monitoring progress, and a broad look at what areas actions will be taken in. Some graphics we found to be noteworthy include the stakeholder diagram (p. 11), land maps (p. 15-17), land cover percentage graph (p. 17), and images of existing local habitats (p. 18-19). The action plan is formatted in a graphic table layout which we found to be an efficient way to organize the actions and other relevant information.

Link to Biodiversity Strategy:
http://biodiversitystratgey.wp.st-andrews.ac.uk/files/2018/11/Master-Biodiversity-Strategy-13.09.18.pdf

Link to Action Plan:
http://biodiversitystratgey.wp.st-andrews.ac.uk/files/2018/11/Master-Biodiversity-Action-Plan-13.09.18-.pdf

1. BACKGROUND

1.1 Introduction

- What is biodiversity and why is it important to conserve?
- What is the biodiversity strategy and what is its goal?

1.2 The business case for sustainability

- Legal compliance: what legislation related to land management, habitats and species does the plan comply with?
- University development: what effect will the biodiversity plan have on university building plans?
- Reputation and awards: how will the biodiversity plan further the sustainability reputation of the university and qualify it for competitive awards?
- Cost savings: how do biodiversity initiatives help the University save money and are some specific examples?
- Sustainability in the curriculum: how do biodiversity efforts facilitate sustainability learning in various schools, and research/volunteering/skill development opportunities for students?
- Outreach and partnerships: what transdisciplinary partnerships/outreach opportunities do biodiversity initiatives provide?
- Wellbeing and quality of life: how will biodiversity initiatives improve mental health and wellbeing through engagement with nature?
- Recruitment and satisfaction: how will biodiversity improve the experiences of the University community?

1.3 Biodiversity as a part of wider university strategies

- What existing broader sustainability initiatives and strategies does the biodiversity plan contribute to? What are summaries of these initiatives and specific objectives in each addressed in the biodiversity plan?

1.4 Local biodiversity governance and stakeholders

- Internal governance and stakeholders: which faculty members in the university (department, position, contact) and external institutions will work to incorporate biodiversity?
- External stakeholders: what other groups will the biodiversity strategy require collaboration with?

1.5 The University's current biodiversity efforts

- What existing community efforts provide a foundation for the biodiversity strategy?

2. THE STRATEGY

2.1 Aims and Objectives

- Overarching aim: what is the purpose of a biodiversity strategy?

- What are the specific objectives of the biodiversity strategy? From the UStA strategy:
    - Develop and maintain a record of species and habitats existing within University grounds through systematic and long-term surveying
    - Conserve and enhance biodiversity to comply with national legislation and regional plans
    - Ensure biodiversity conservation and enhancement is a priority during development planning
    - Provide and promote hands-on teaching about biodiversity and sustainable ecosystem management within the University through carrying out biodiversity surveying, planning and management
    - Raise staff, student and the local community's awareness of and positive engagement with local wildlife and the immediate environment
    - Work with all relevant local stakeholders and other bodies working towards biodiversity conservation at the local, national and global level
    - Become a leader in evidence-based biodiversity management, therefore increasing the reputation of the University
- These objectives of the biodiversity strategy will be enacted through the **Action Plan** which focuses on specific actions in three areas: 1) habitats and areas, 2) species, and 3) teaching, research, communication and engagement.

2.2 Achieving Objectives and Monitoring Progress

- Who is responsible for the creation of the biodiversity strategy and action plan?
- Who will be responsible for monitoring them, and what will their responsibilities be?
- Through what actions will progress be monitored?

2.3 Actions: Habitats and Areas

- Strategy scope: what areas does the biodiversity strategy pertain to?
- What percentages of land types exist, and how does the plan aim to increase the overall percentage of desirable habitat?
- What are the general habitat improvement recommendations? From the UStA strategy:
    - Increase planting of native and habitat diversifying, invertebrate resource rich species
    - Reduce mowing intensity and create wildflower meadows, strips and corridors
    - Increase native hedgerow length
    - Increase the proportion of woodland and abundance of native trees
    - Create green roofs and walls
    - Increase number of bird/bat boxes and bug hotels on University property
    - Increase organic matter in soil and create open compost heaps
    - Retain and increase the amount of dead wood

- Manage coastal habitats to reduce erosion, disturbance and improve access for wildlife
  viewing
- Manage riparian habitats to reduce erosion, disturbance and improve access for wildlife
  viewing
- Increase the number of ponds
- Reduce the amount of sealed surfaces and paths
- Increase connectivity between University areas and habitats through corridor creation and integration into existing habitats throughout St Andrews

2.4 Actions: Species

- What kinds of species does the plan aim to support?
- How will these species be determined?
- Species that will be focused on within each of the following groups:
  - Invertebrates
  - Amphibians
  - Reptiles
  - Birds
  - Mammals
  - Native Trees
  - Native Wildflowers
  - Fungi
  - Invasive Species

2.5 Actions: Teaching, Research, Communication & Engagement

- Teaching and research: what opportunities for teaching and research does a biodiversity initiative provide?
- Community and engagement: how will engagement with local biodiversity be achieved?

Northumbria Biodiversity Plan

Summary

The Northumbria Biodiversity Plan establishes 5 golden rules that it bases all of its action plans off of. These rules include not only the health of the local flora and fauna, but also that of the community. This plan details actions and grounds management that can be taken to increase the campus' biodiversity for a variety of plant types, as well as birds, bats, and insects. The most interesting part of this plan is how it details ways to increase wellness within the community as a part of biodiversity. There are action plans for creating several types of wellness spaces for the community to enjoy and interact with the environment.

This focus on community wellness and health could be adopted by the University into its own action plan.

Link to Biodiversity Plan:
https://northumbria-cdn.azureedge.net/-/media/corporate-website/new-sitecore-gallery/services/campus-services/documents/pdf/biodiversity-action-plan-2018-2020.pdf?modified=20190208155707&la=en&hash=80732B7B71CB4E0280E9FD177A1BD1928DF9103B

- Undertook audits to assess biodiversity and find areas for improvement- audits take place every two years.
- This plan:
    - Identifies ground management principles that would increase biodiversity
    - Suggests student research projects to enhance biodiversity and student learning
    - Lists out potential large scale estate planning projects
- Monitored by university sustainability management group.
- "5 Golden Rules - To be considered within all estate management activities:
    - 1. Valuable planting options Choose plants which enhance sustainability (biodiversity and wellbeing) on campus.
    - 2. Good grounds management practices Ensure our operations reduce damage and maximise benefit to wildlife and species on our campus.
    - 3. Living Lab ethos Utilise the estate to inform and support research and teaching on biodiversity and wellbeing, as well as to raise awareness of sustainability amongst all who visit our campus.
    - 4. Maximise wellbeing Develop an estate that supports staff, student and community wellbeing.
    - 5. Contribute towards a sustainable city Work in partnership with key Newcastle groups to support biodiversity across the city. "
- General Principles:
    - Layering: consider three components of an area:
        - Ground flora, shrub layer, and canopy
        - Green walls, climbers, planters, and ponds can add more layers
    - Grassland Management:
        - Cut grass less frequently, which increases the amount of plant material for carbon dioxide, and provides refuge and food for butterflies, moths, and invertebrates.
        - Where possible, cut once a year in late july/august.
        - Meadow species may be added to improve biodiversity.
        - Tall grasslands should be cut every 2-3 years.
    - Hedgerows should be a mix of native species.
    - Trees:
        - Never cut grass to the base of the tree, it will cause damage.
        - Planting should favor native species.
        - Trees can provide shade in parking lots.
    - Shrubs:

        - May be planted as singular bushes, clumps or patches, or continuous dense tracts.
    - A wildflower strip can be planted as a border in order to increase the bee population.
    - Consider using native plants in planters.
    - Consider installing green walls:
        - Can provide additional habitats and food sources, insulate buildings, improve air quality, and reduce noise pollution.
        - Planting should consider biodiversity needs.
        - Spring is ideal for planting.
    - Edible Campus:
        - Grow edible plants on campus to be eaten by staff and students/ as a part of teaching and research.
    - Bat, bird, and insect boxes:
        - Introduce bird nesting boxes in trees not old enough to have nesting crevices.
        - Be mindful of legislation protecting bats when installing bat boxes.
        - Insect hotels can be installed to support the local insect population.
    - Spaces for Wellbeing:
        - A calm space can be created with trees, walls, and hedging.
            - Birds can be attracted with feeders and bird boxes, and aromatic plants can be planted.
        - A social space can be created with picnic tables and benches near libraries, halls, and staff areas.
        - Active spaces can be designed by implementing outdoor gym equipment and running routes.

Loughborough Biodiversity Plan (LUBAP)

Summary

The LUBAP is an exemplary example of a well organized biodiversity plan. It divides its action plan into two groups: habitat types and species/species groups, which were chosen based on both the current wildlife and the potential for biodiversity. For each habitat and species/species group, there is a detailed action plan with objectives, actions, and plans for monitoring. Each of these are further divided into mandatory and when possible practices. These subcategories made the LUBAP clear and understandable, and could be adapted into the Universities own biodiversity plan.

This plan also presents actions that can be taken through adjusting buildings, parking lots, and lighting. By making green walls, adjusting parking lots to help slow runoff, and adjusting lights so as to not alienate wildlife, this plan increases biodiversity not just

through the care of plants and animals, but by adjusting manmade structures to better accommodate biodiversity.

Link to Biodiversity Action Plan:
https://www.lboro.ac.uk/media/wwwlboroacuk/content/sustainability/downloads/Biodiversity%20Action%20Plan%20V3.pdf

- Key Objectives:
    - To increase the quality of life for staff and students.
    - To utilize biodiversity as a valuable teaching resource.
    - To establish links through industry from work experience for students studying environmental subjects.
    - To establish wider community links and benefits.
    - To identify opportunities to widen the profile of the university.
    - To enhance biodiversity for future generations.
  - Divided into habitat types and species/species groups.
    - Chosen based on current wildlife and biodiversity potential.
    - LUBAP has identified their campus habitats, and then created an action plan for each habitat. Next, they detailed a method to monitor the habitat after implementing the action plan and to report on progress every 5 years.
  - Green roofs, green walls, and rainwater collection has been utilized to improve biodiversity in buildings.
    - Discarded material from buildings can be used to make new habitats.
  - Parking lots with permeable surfaces slow runoff and help with absorption and breakdown of contaminants.
    - They channel runoff into grass swales before entering an attenuation pool.
  - Lighting:
    - Bright lights can scare away wildlife, so lamps should be as low as possible with shields to direct light downwards. Lighting should be designed to light specific areas without spilling into grass areas.
  - LUBAP also categorized by species, and creates action plans and plans to monitor progress for those native species.