



Habitat Management

Week 1: Introduction
Principles, planning and Monitoring

Habitat Management

- Module aim:
 - ..to critically examine the management of habitats
- Outcomes:
 - ..Evaluate habitat management practices in terms of biodiversity and other factors
 - .. To critically evaluate different habitats and their management



Habitat Management

❖ Assessment:

- Coursework (50%)

- 📁 Habitat Management Plan & Poster presentation – conference format

- Examination (50%)

- 📁 2 Hour exam (2 from 4 questions).



Habitat Management

- Course content
 - Introduction to Principles, planning and monitoring
 - Planning for access
 - Woodland, grassland and farmland mgt
 - Site auditing and management plan formulation – Craig y Nos
 - Group seminars



Introduction

 Why is it necessary?

- To enrich land for wildlife
- Provide places of beauty & inspiration
- Much more than seeking to preserve
- Some maintenance of the current while preparing for inevitable change

(Ausden, 2010)

What is habitat Management?

- Influencing vegetation – benefit species
- Allow for successional process
- Manipulations
- Nest site provision
- Control of unwanted plants
- Minimising anthropogenic influences





- Natural systems – rate of succession will depend on:
 - Vegetative removal
 - Physical disturbance
 - Grazing
 - Trampling
 - Fires
 - Meteorological events (drought; storms)
 - Large-scale insect damage
 - Proliferation of disease

- European habitats have virtually been modified by man
- Fragmented semi-natural habitats
- Cultural habitats
- Isolated fragments and potential for recolonisation
- Ancient habitats
- Managing existing human activity rather than reintroducing active habitat management

(Ausden, 2010)



Principles of Habitat Management



- **5 main ways of removing vegetation**
 - **Grazing and browsing**
 - **Cutting and removal**
 - **Burning**
 - **Soil disturbance**
 - **Removal of topsoil**

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- A photograph of a wetland landscape. In the foreground, there is a dense field of green grass. A narrow, winding waterway or stream flows through the middle ground, reflecting the sky. The background shows a line of trees and a clear sky.
- Temporary disturbance/unsuitable conditions
 - Piecemeal effects
 - Rotational Management
 - Mosaic habitat
 - Edge management
 - Variation in topography

Habitat Management in practice

- Community interaction
- Succession and disturbance
- Competition
- Predation
- Fertility
- Life History
- Dispersal

Communities

- Manage for a particular species – must maintain communities
- Red Helleborine
Cephalanthera rubra
- Pollination
- Nest holes
- Mycorrhiza
- Helleborine – carpenter bees- bellflowers – wood boring insects – mycorrhiza
- (Sutherland and Hill, 2009)



Succession

- *“From an area devoid of life to one with a climax community” (Sutherland and Hill, 2009:5)*
- Autogenic succession
- Colonist
- Suspending succession
- Intensity of management is inversely proportional to site age/maturity

Disturbance

- Retarding competitors
- Regeneration
- Too much or too little – few species
- Intermediate disturbance – most diversity

Competition

- Species restriction
- Tolerance – saltmarsh plants
- Exclusion from non-saline environment – ability to compete (*Davy & Costa ,1992*)
- Species composition of animal communities
- Common Toad *Bufo bufo* dominance – under grazing
- Management – remove rank vegetation



Predation



- Influences community
- Hedgehog *Erinaceus europaeus* reintroduction failures
- Community structure also depends upon pathogens and parasites:
 - Myxomatosis

Fertility

- A major influence in community structure
- Before man – fertile areas restricted to flood plains
- Most UK flora adapted to living in relatively infertile soils
- Artificial fertilisers – some species flourish at the expense of diversity
- Agricultural run-off or nitrates in rainfall

Life History

- Determines timing and type of management
- Life cycle of other species
- Timing of haymaking
- Grazing during summer – seed bank
- Timing variation (grazing) – variation in species present
- Hedge cutting - birds

Dispersal

- Distances of dispersal vary:
- Plant communities – windborne or via birds/mammals
- Small tortoiseshell *Aglais urticae* 1km hr⁻¹ of sunshine
- Black hairstreak *Strymonidia pruni* 100m yr⁻¹



Dispersal

- Plants – long-lived or seed bank
- Vertebrates – typically long-lived
- Invertebrates vulnerable
- Poor dispersers – prone to extinction
- Heath Fritillary – failure to manage woodlands – local extinctions. Likes newly burned heath or recently coppiced woodland



Coppiced Woodland

- Pearl-bordered fritillary *Boloria euphrosyne* – coppiced in last 3 yrs
- High Brown Fritillary *Argynnis adippe* - coppiced in last 3 yrs
- Small bordered Fritillary *Boloria selene* – coppiced 2-5yrs (lush violets)
- Dormouse *Muscardinus avellanarius* – older coppice
- Rotational cutting needed



Patches and mosaics

- Probability of extinction increases with isolation
- Repopulation from adjacent areas
- Small habitat – species with poor dispersal ability will be vulnerable



Structure

- Excessive tidiness is a problem
- Fallen trees, nettle patch and overgrown hedge a necessity
- Hummocks, banks, depressions – ground
- Many species need varying habitats during their own lifecycle – to hide, nest etc



Levels of Intervention

- 1. Species specific conservation
- Can be successful – correct diagnosis and reasons for original decline
- Often used to benefit birds or butterflies
- Controversial approach
- Judgement call – control of predators



Levels of Intervention

- Practical advantages:
 - Setting of clear and unambiguous targets & associated actions
 - A tool for focussing minds and resources
 - National targets – a ‘standard language’ defines priorities and allocates resources



Levels of Intervention

- 2. Maintaining key natural processes
- Large-scale grazing regimes
- Flooding regimes
- Encouragement of keystone species



Levels of Intervention

- Perceive as naturalness
- Lower ongoing maintenance costs
- Potential to support species rare or absent from heavily managed environments



Yellowstone National Park

- Wolves prey largely on red deer *Cervus elaphus*
- Behaviour alteration since wolf reintroduction
- Tree growth – more varied habitats
- (Ausden, 2009)



Levels of Intervention

3. Re-wilding

- Aims to restore large, strictly protected core wilderness areas
- Supporting free ranging large herbivores and large carnivores

(Donlan, *et al.*, 2005)



Integrating with other values

- 📖 Nature conservation *per se* unlikely
- 📖 People are attracted to landscape, livestock or sense of wilderness rather than biodiversity value
- 📖 Integrated with:
 - Recreation
 - Education and research
 - Cultural history
 - Aesthetic considerations

📁 With limited funding how does an organisation plan, set objectives and monitor sites?

📁 Next week : Workshop – to consider the management plan of Craig y Nos Country Park



Habitat Management: Planning and Monitoring



Site Management

- First know what's there – inventory
- Understand its ecology
- Identify site objectives
- Set out work programme
- Identify resources required (money, labour, skill set)
- Plan a monitoring schedule

Management Plan Functions:

- Even if the plan is 'not to manage' it is still necessary to have a management plan!
 - Feature evaluation
 - External features which may pose significant threats
 - Legal constraints identified
 - Monitoring

Management Plan Functions:

- 📁 Site Description – physical and biological
- 📁 Identify purpose of managing site
- 📁 Conflict anticipation
- 📁 Identify management protocol
- 📁 Assess necessary level of monitoring
- 📁 **Organise staff and resources**
- 📁 Organise training
- 📁 Link with species and habitat action plans
- 📁 Facilitate communication between stakeholder/interest groups

Volunteers!

- Many conservation organisations (and others) use volunteers
- In most areas there is an organisation which manages volunteers eg in Swansea the SCVS
- Some are bad at managing volunteers and have a high turnover
- Others good eg RSPB, NT.



the
nation's
second
favourite
pastime..

* Source: "The Social Psychology of Leisure" Professor Michael Argyle (published by Penguin Books, 1987)

.. is voluntary work, actually *

<http://www.vois.org.uk/bendon>

Thousands of people are doing it
all the time... you could too

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V&B
Volunteer Bureau



BECOME RICHER. WORK FOR NOTHING.

Volunteering is a life enriching experience. And at the Volunteer Centre we have hundreds of opportunities for people from all walks of life.

Brecon Beacons National Park

- Shaped by thousands of years of human use interacting with a natural environment
- Variety of habitats – exposed open moors of the uplands to the gravel river beds of the Usk
- Management over the centuries has modified most natural habitats

Brecon Beacons National Park

- Extensive grasslands – grazing livestock
- Managed woodlands – cutting, removing timber and replanting
- Rivers and wetlands altered by drainage and flood defences
- Semi-natural landscape

Volunteering in BBNPA: Car Park Watch Scheme

- 2003 – crime wave in Talybont
- Powys Police, Forestry Commission, BBNPA
- Heavily used tourist areas in central Park
- Car crime ↓85%



BBNPA, 2010

Public Rights of Way Surveys



- 1980km of public rights of way
- Obligation to survey 5% each year
- Farmland, higher common land
- Volunteers check
 - Paths open
 - Ease of use
 - Stile, bridge and gate condition

BBNPA, 2010



Guided Walks

- Themed walks staffed by volunteers (60%)
- Knowledge from residents
- Wardens & BBNPA also



BBNPA, 2010



Practical Work Parties

- Weekly opportunities throughout the year
- Supervised
- Woodland thinning and coppicing
- Maintenance
bridleways
- Grassland improvement
- Health & Safety & training



BBNPA, 2010

