

Unit 17: Undertake Grassland Habitat Management

Unit code:	K/600/9630
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to introduce learners to the grassland habitat skills and management and how these can be applied in practice. It is designed for learners in centre-based settings looking to progress into the sector or onto further/higher education.

● Unit introduction

Many species rich grasslands have been lost during recent years, mainly due to the agricultural needs of individual countries. Areas that could create a good, viable grassland have been ploughed and used for more profitable species that can be sold on, mainly for food. Fertiliser usage and other changes to the soil have also adapted the land to make it unsuitable for grassland.

What grasslands lack in economical value they make up for in ecological value, providing a habitat for many rare and vulnerable species that can thrive if given the right conditions. If we want to keep these fantastic habitats we must continue to maintain and develop these areas as well as inform the next generation on how to improve these beautiful sites. Knowledge of the ecology and management of grassland habitats in Britain is therefore essential for anyone involved in countryside management.

This unit gives learners the opportunity to learn the management techniques needed to maintain a grassland as well as investigate the history and ecology of grasslands. It allows learners to experience and practise the techniques needed to maintain these sites as well as how to evaluate a site and survey it for the presence of valuable and beautiful species.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand the history and ecology of grassland habitats
- 2 Be able to survey grassland species and habitats
- 3 Understand management techniques for grassland sites
- 4 Be able to carry out practical grassland habitat management.

Unit content

1 Understand the history and ecology of grassland habitats

Origins: development of grasslands after the last ice age; changes to grassland as trees develop in Europe including extent and distribution of woodland and open grassland; Neolithic clearance of woodland and associated increase in extent of open 'rangeland' as farming develops; deforestation of Britain to create agricultural land; changes of land use since medieval times; grassland decline over the last 300 years due to agricultural development; the influence of the world wars on loss of grassland and meadows; current initiatives

Ecology: factors that affect grassland; species present in different types of grassland; types of grassland eg acid, calcareous, downland, flood meadows, hay meadows, neutral, purple moor-grass rush pastures, semi-improved, unimproved and species rich grassland; plant adaptation to low nutrient levels; animals that live in different grasslands and why they require the grassland environment.

2 Be able to survey grassland species and habitats

Survey: choice of site; use of ordnance survey maps; permissions required eg landowner's consent, public right of way, possible prosecution; measuring the site eg width, length, area; assessment of previous land use, adjacent land use, structure present or nearby; evidence of management; plant species present; animal species present; use of keys to identify species; safety considerations when surveying eg personal safety, safety around livestock, wearing the correct clothing, use of gloves if handling plants, hand washing

3 Understand management techniques for grassland sites

Management methods: intensity of grazing; the pattern of grazing eg all year, seasonally or occasionally; types of grazing animal eg cattle, sheep, horses, goats, rare breeds, rabbits, deer; timings of maintenance; ecological factors; constraints; resources; conservation and management objectives; health and welfare issues; licences

Mechanical: mowing and cutting; height of cuts and timings; controlling invasive species; cutting to encourage invertebrates; birds species that can be effected by incorrect cutting; dealing with a risings

Burning: consideration of when, why, how much to burn; type of burn; staffing, equipment; health and safety measures; effectiveness of burning at reducing biomass; legal considerations

Grassland restoration, creation and improvement techniques: soil preparation, seeding, establishment methods, post establishment maintenance; health and safety; conflicts in management aims (nature conservation, recreation, agriculture, identification, resolution)

4 Be able to carry out practical grassland habitat management

Practical management: mowing; cutting/trimming; harvesting; animal handling eg livestock, small invertebrates, small mammals; scrub and invasive plant management; fencing; grassland creation and restoration eg soil preparation, seeding, establishment methods, post establishment maintenance; health and safety considerations working in grassland; risk assessment

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 explain the historical development of grassland in the UK	M1 describe the impact of agriculture on the loss of grassland since the start of the 20th century	D1 discuss the ecological and habitat requirements of one grassland animal and one plant species
P2 explain the ecology of grassland in the UK [IE]		
P3 plan surveying including appropriate techniques, equipment and permissions	M2 describe the legal and health and safety considerations of surveying privately owned land	D2 evaluate the condition of a piece of grassland and suggest improvements that can be made to the site
P4 survey grassland habitats and species		
P5 report on the structures, features and ecosystem surveyed		
P6 evaluate different grassland management techniques	M3 evaluate the advantages and disadvantages of different grassland management techniques	D3 examine problems that can occur when working on a site and how these can be minimised or avoided.
P7 explain grassland management objectives for a given site		
P8 prepare equipment and resources for practical management of grassland habitats [RL]	M4 discuss which tools are most suitable for a range of maintenance situations.	
P9 safely carry out practical management of grassland habitats in a given site [CT, TW, SM, EP]		
P10 recommend improvements to the management of grassland habitats.		

PLTS: This summary references where applicable in the pass criteria, in the square brackets, the elements of the personal, learning and thinking skills. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Delivery of this unit will involve practical assessments, written assessment, visits to suitable collections and will have links to industrial experience placements. There is an opportunity in this unit to use a wide range of techniques to motivate learners. Lectures, discussions, seminars, guest lectures, presentations, site visits, practical work, research or work placements would all be suitable.

Work placements should be monitored regularly in order to ensure the quality of the learning experience. It would be beneficial if learners and supervisors were made aware of the requirements of this unit before any work-related activities so that activities can be planned to suit the unit requirements and so that evidence can be collected. For example, learners may have the opportunity to survey or carry out practical grassland management and they should be encouraged to ask for observation records and/or witness statements to be provided as evidence of this. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

Whichever delivery methods are used, it is essential that tutors stress the importance of sound environmental management. Learners should know that some grassland species are protected by law and that licences from Natural England are required to handle them.

Health and safety issues relating to the integration of safe working practices and environmental good practice into all practical activities must be stressed and regularly reinforced, and risk assessments must be undertaken prior to practical activities.

Learning outcome 1 requires learners to study the history of the grassland in Britain and how the grassland has changed over time. This will mainly be delivered as formal lectures, research sessions and possibly through guest specialist lecturers. It also requires learners to develop an understanding of the ecology of grasslands, which can be delivered by a series of visits, guided walks, field studies, guest speakers or similar.

Learning outcome 2 requires learners to be able to survey a grassland. This is best delivered as a series of practical sessions or site visits where learners have the opportunity to plan a survey and then carry out the survey on site, recording data as they go.

Learning outcome 3 involves studying the management techniques that can be used on a grassland. For this objective a work placement may be suitable, but site visits and lectures as well as research sessions may be appropriate.

Learning outcome 4 can be linked to learning outcome 3 as the research carried out in outcome 3 can be used here. Learners should be able to access the equipment that they studied for learning outcome 3 to attempt guided practical sessions. Health and safety issues are key and guided practical work must have the correct risk assessments, for example working around cattle, using machinery.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan gives **an indication of the volume of learning it would take the average learner** to achieve the learning outcomes. It is **indicative and is one way of achieving the credit value**.

Learning time should address all learning (including assessment) relevant to the learning outcomes, regardless of where, when and how the learning has taken place.

Topic and suggested assignments/activities and/assessment

Introduction and overview to the unit.

Assignment 1: The history of Grasslands (P1, M1)

Introduction to assignment.

Research and formal lectures on the development of grassland over time.

Assignment 2: The Ecology of Grasslands (P2, D1)

Introduction to assignment.

Guided site visits, lectures and practical work.

Assignment 3: Surveying a Site (P3, P4, P5, M2, M3, D2)

Introduction to assignment.

internet research, lectures and practical sessions.

Assignment 4: Techniques to Manage Grassland (P6, P7, M4, D3)

Introduction to the assignment.

internet research, library research, guest lectures, demonstrations and lectures.

Assignment 5: Practically Managing Grassland (P8, P9, P10, D4)

Introduction to the assignment.

Supervised practical work, demonstrations or work placement.

Unit review.

Assessment

For P1, learners must understand the historical development of the grassland. Assessment can be in the form of an information booklet, presentation, PowerPoint, or seminar.

For P2, learners should describe the ecology of grassland in Britain. Evidence for this can be in the form of a set of detailed notes, presentation, leaflet, poster or observed role play.

For P3, learners must show that they can correctly plan a survey, including the correct equipment and legal permissions. This can be assessed by the tutor, a work placement supervisor or guest speaker. Evidence can be provided from a range of activities listed in the delivery section. Witness statements, a written report, presentation, production of a surveying sheet that can be used by others or a report on how to survey a specific location can form the basis of the evidence.

For P4 learners must be able to survey a grassland to determine the species that are present. They should use their plan from P3 for this. Evidence can be provided from a range of activities listed in the delivery section. A work diary, annotated photographic diary, witness statements or observation records form the basis of the evidence. Guidance on the use of observation records and witness statements is provided on the Edexcel website.

P5 is closely linked to P4 and can be completed when carrying out the practical work of surveying a grassland. For this, learners should be able to add to their plan and comment on features and structures that are on or near the grassland being surveyed. The assessment can take the same form as in P4.

For P6 learners must evaluate the different techniques that are used to manage grassland. Grazing, burning and cutting should all be looked at. If possible, evidence could be in the form of site visit notes where learners have observed these techniques in the field and research notes.

P7 involves learners visiting a site and explaining the objectives of the people managing the site. Evidence for this could take the form of a feedback presentation, a guide leaflet for a public visitor, a web page or a mock recruitment training session for new staff.

P8 and P9 can be carried out together as they involve setting up and then using equipment to manage a piece of grassland. Evidence for this can be in the form of witness statements, observation records, learner diary, an annotated photo diary, or a film/documentary about the site.

P10 can be assessed as a report on the site used in P8 and P9. The report should include what improvements could be made to the site. Evidence could also be in the form of a presentation or letter to the landowner.

For M1, learners could provide research notes or other forms of written assessment as evidence. Alternatively, a presentation, leaflet, section of a website, section from a book or similar can be completed.

For M2, evidence can be provided in the form of a guide to landowners/surveyors, a leaflet for new ecologists, a mock trial of someone who has broken the law when surveying, a news report on someone who has been arrested, or a newspaper story.

M3 could be assessed in a similar way to M2 but could be a newspaper article about health and safety gone wrong, a TV-style documentary, a leaflet guide or similar.

For M4, evidence could take the form of a presentation, leaflet, section of a website, section from a book, video guide, blog of an ecologist or similar.

D1 is the study of one animal and plant species that live on a grassland. This could be assessed as a piece of written work, a presentation, blog or magazine article for a specialist magazine, for example the Wildlife Trust.

D2 requires learners to evaluate an area of grassland. Learners must comment on possible improvements. Evidence can be in the form of written notes based on a work diary, lecture, poster, leaflet, PowerPoint/slideshow.

D3 requires learners to examine the problems of working on a site. For this learners could complete a team presentation, team video or leaflet.

Programme of suggested assignments

The following table shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, M1	The History of Grassland	Imagine you are a working for the RHS, you have been asked to study how grassland has developed as part of their programme to create a grassland at one of their gardens.	Leaflet. Web page.
P2, D1	The Ecology of Grasslands	The RHS now want to know what the ecology should be on a site once it is developed and what types of grassland are available to them.	Detailed notes. Leaflet. Presentation. Report.
P3, P4, P5, M2, M3, D2	Surveying a Site	The site for the new grassland has been selected and you must now plan a survey of the site to see what it needs to become a grassland. What is already there? What needs changing?	Report. Presentation. Video.
P6, P7, P8, P9, P10, M4, D3	Developing the site	Now you must work on the site. You must select the right techniques for the site and carry out the required maintenance.	Witness statements. Diary. Presentation.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC land-based sector suite. This unit has particular links with:

Level 2	Level 3
Introduction to Agriculture and Conservation	Element EC23.1 Prepare for field surveys Element EC23.2 Collect and record data through field surveys Element EC23.3 Interpret survey data and report on findings Element CU88.1 Plan habitat management work
Undertaking Ecological Surveys and Techniques	Understanding the Principles of Wildlife Populations, Ecology and Conservation

Essential resources

Learners require access to the internet, the correct tools for maintenance techniques, access to health and safety legislation, access to livestock or a work placement that can provide this, suitable grassland or a site to work on.

Employer engagement and vocational contexts

Learners would benefit from having access to a working environment. Often this is achieved by creating links with local businesses or charitable organisations which may even benefit from taking on learners. Local authorities can be a useful source of information, as can business education alliances. Charitable organisations can often provide guest speakers to attend and give lectures as well as demonstrations.

Indicative reading for learners

Textbooks

Buckley G – *Biological Habitat Reconstruction* (John Wiley and Sons, 1989) ISBN 1852930586

Fitter R, Fitter A and Farrer A – *Grasses, Sedges, Rushes and Ferns of Britain and Northern Europe* (HarperCollins Publishers, 1984) ISBN 0002191369

Green B – *Countryside Conservation: Land Ecology, Planning and Management, Third Edition* (Spon Press, 1996) ISBN 0419218807

Lane A and Tait J – *Grasslands, Heaths and Moors* (Hodder Arnold, 1992) ISBN 0340533706

Price E – *Lowland Grassland and Heathland Habitats* (Routledge, 2002) ISBN 041518763X

Rose F – *Colour Identification Guide to the Grasses, Sedges, Rushes and Ferns of the British Isles and North Western Europe* (Viking, 1989) ISBN 0670806889

Rose F – *The Wild Flower Key: How to Identify Wild Plants, Trees and Shrubs in Britain and Ireland* (Frederick Warne, 2006) ISBN 0723251754

Sutherland W and Hill D – *Managing Habitats for Conservation* (Cambridge University Press, 1995) ISBN 0521447763

Vera F – *Grazing Ecology and Forest History* (CABI Publishing, 2000) ISBN 0851994423

Websites

www.acornecology.co.uk

Acorn Ecology Limited

www.english-nature.org.uk

English Nature

www.naturalengland.org.uk

Natural England

www.wildlifetrusts.org

Wildlife Trust

Delivery of personal, learning and thinking skills (PLTS)

The following table identifies the PLTS opportunities that have been included within the assessment criteria of this unit:

Skill	When learners are ...
Independent enquirers	carrying out internet and library research
Creative thinkers	suggesting and carrying out improvements to tasks
Reflective learners	assessing your own safety and carrying out risk assessments and improving skills
Team workers	completing management of grassland techniques
Self-managers	getting tasks completed on time, meeting targets for assessments
Effective participators	participating in group tasks, applying techniques to new situations.

Although PLTS opportunities are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Creative thinkers	applying management techniques learnt to the field
Reflective learners	suggesting improvements to techniques and sites
Team workers	practising techniques
Self-managers	producing written work on time
Effective participators	participating in team activities.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	research on the history of grasslands
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	research techniques and history
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	producing presentations, writing reports, producing a web page
Present information in ways that are fit for purpose and audience	presentation, blogs, video, web pages
Mathematics	
Identify the situation or problem and the mathematical methods needed to tackle it	calculations needed to sow correct amount of seed
Select and apply a range of skills to find solutions	certain techniques to manage grassland may require equipment that needs an understanding of maths
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presentations, video, blogs, group presentations
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	reading information as part of internet and library research
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	completing reports, diaries and other assessments.