

Unit 14: Understanding Woodland Management

Unit code:	L/601/0107
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to introduce learners to understanding of woodland management and how this 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

In a country with only 12 per cent woodland cover, UK woodlands are under pressure to meet growing demands from a wide range of uses. Once managed mainly as a source of timber, modern woodlands now often receive considerable income from other activities such as shooting. In addition, there is increased public demand for other recreational uses including walking, biking and watching wildlife. UK woodlands have been recognised as key habitats for conserving biodiversity and many woodland species are protected by European Directives. Globally, woodlands are regarded as an invaluable tool in mitigating climate change. Timber, grown in the UK, can provide materials for building that can be replenished on a regular basis without the need for depleting valuable forest ecosystems overseas. In addition, the carbon dioxide released when burning wood products for fuel can be reabsorbed by locally grown trees in order to reduce climate change and grow more trees for fuel and timber. Woodlands need to be managed properly to achieve their multiple objectives.

This unit focuses on the production of management plans to guide the work and development of woodlands. The management of woodlands requires a long-term commitment, and the production of well-written management plans is crucial to ensure continuity. Often woodlands will be managed by a succession of foresters, land agents or owners, and a management plan helps to encourage good practice and prevent mistakes from being repeated.

On completion of this unit, learners will have a good knowledge of the different types of management techniques available. They will also be able to establish the objectives for woodland. Learners will gather information, such as tree species, size, density and structure, to assess the current state of a woodland. They will use this information to formulate recommendations for woodland management and to carry out monitoring to gauge its success in meeting its objectives.

Although machinery or dangerous equipment will not be used as part of this unit, centres should be aware that, under particular conditions, woodlands can be dangerous places.

● Learning outcomes

On completion of this unit a learner should:

- 1 Be able to obtain woodland data and information
- 2 Be able to produce woodland management plans
- 3 Understand woodland management objectives
- 4 Understand woodland management planning.

Unit content

1 Be able to obtain woodland data and information

Physical: access eg roads, rides, public rights of way; surrounding land use; slope and aspect; perimeter; drainage; water courses; structures

Biological: species of trees, shrubs, herbs; canopy structure; animals; pests and diseases; habitat survey

Quantitative tree information: diameter at breast height (DBH); number of trees per hectare; percent species breakdown; tree height; basal area; volume

Qualitative tree information: form; branching height; multiple leaders; taper; potential value

Meteorological information: different types eg maximum and minimum temperature, wind speed and direction, prevailing winds, sunlight hours, precipitation

Soils information: soil type; texture; structure; pH

Interpretation and presentation of information: summary tables and/or graphs; maps; calculations as required

2 Be able to produce woodland management plans

Simple forest or woodland management plan documentation: introduction; general site description; general inventory and detailed description; detailed maps; summaries of collected data and information; appropriate management objectives; silvicultural techniques; schedule of activities recommended to achieve objectives; relevant health and safety requirements; relevant operational considerations; current legislation and codes of practice

Presentation: professional style; media eg, written report, PowerPoint presentation, website, maps with overlays, 3-D models

3 Understand woodland management objectives

Objectives: management objectives eg timber production, amenity, conservation, landscape, community use, recreation, wildlife, game, sporting; health and safety and legal considerations

Appropriateness of objectives for sites: matching management objectives with specific sites; consideration of impact of activities on sites; land classification; conflicting land uses; complementary land uses

4 Understand woodland management planning

Structure and content: meaning and purpose of aims and objectives; importance of site description, prescriptions, action plans, budgets; sources of information eg raw data collected directly from woodland, Ordnance Survey (OS) maps, soil maps, soil surveys, mensuration surveys, existing inventories, ecological surveys, Met Office data, local weather station data, public records office or local history centre, local authorities, relevant websites; target audience and stakeholders

Legal and environmental considerations: felling licences; tree preservation orders (TPO), EU Species Directive 1992; land classification eg area of outstanding natural beauty (AONB), site of special scientific interest (SSSI), local nature reserve (LNR), country park, national park

Economic and financial considerations: income sources eg government grants, non-government grants, sale of products, sale of services; access to markets

Woodland users: types, eg general public, ramblers, dog walkers, off-road biking and vehicles, picnics, hunting, shooting, play; facilities eg play structures, trails, car parks, toilets, refreshments; proximity to population centres; public attitudes and pressure

Physical considerations: access to site; access within site; exposure; site stability; soil drainage and height above water table; weather extremes eg drought, frost, snow, floods, winds

Woodland assessment: techniques for different purposes eg determining woodland resource; monitoring tree health and condition or damage by pests, determining landscape value, recording wildlife habitats or features such as ancient/veteran trees, determining archaeological value

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 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 collect and record data and information relevant to woodland [IE]	M1 explain how selected summarised data and information can be used to help develop a forest or woodland management plan	D1 evaluate the presentation of selected information and suggest recommendations for improvement
P2 interpret data and information collected [CT]		
P3 produce a management plan for a given woodland site including operational and health and safety requirements [SM]	M2 justify the recommended schedule of activities within a management plan	
P4 present a woodland management plan appropriately to a given audience [CT]		
P5 discuss the uses of woodlands [CT, SM]		
P6 explain potential conflicts which may exist in relation to the use of woodlands [SM]	M3 justify management objectives for a forest or woodland site	
P7 explain selected woodland management objectives [SM]		

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:
<p>P8 explain the structure, content and presentation of a woodland management plan [IE, RL]</p>	<p>M4 assess the suitability of a woodland for given activities.</p>	<p>D2 evaluate a selected management plan and suggest improvements.</p>
<p>P9 explain how to achieve the best balance between present and potential woodland uses covering:</p> <ul style="list-style-type: none"> • legal • environmental • requirement of woodland users • economic/financial • physical <p>[IE, RL]</p>		
<p>P10 explain techniques used to assess woodlands.</p>		

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

The main focus of this unit is the development of practical skills to enable learners to plan for woodland management effectively, with an emphasis on skills developed in the field. These skills include the ability to carry out woodland surveys to determine species composition, density and structure, as well as physical factors, and to assess suitability for a variety of uses. It is intended that the majority of learning will take place in woodland situations supplemented with theory sessions in the classroom. The use of visiting speakers is strongly recommended. This could be a forestry contractor to discuss the cost of forestry operations, or the local Forestry Commission Woodlands Officer to discuss the grants available for woodland projects.

An important aspect of woodland management, considering the long-term nature of woodlands, is the role of management plans in ensuring continuity and progression of practices. Learners should be provided with management plans covering several woods owned by different organisations for example Forestry Commission, private landowners, Woodland Trust, county wildlife trusts and , Natural England. Learners should have access to a range of plans in order to see how plans may be presented to differing audiences. A visit to the local Forestry Commission office would be useful to see the planning and consultation that takes place before final drafts of plans are produced.

Learners should be introduced to a variety of woodlands with differing uses and management objectives. It is strongly recommended that learners have the opportunity to visit several working woodlands, of various sizes and management intensity, to observe a range of woodland management techniques. This will give them with the confidence to make their own recommendations. A visit to a local sawmill is also suggested as it will give learners the opportunity to see trees being converted into timber and help them appreciate the importance of quality and added value.

Care should be taken when visiting woodlands, as there may be hazards from forestry machinery, lorries or danger from falling trees and branches. In working woods, learner groups should be led by a suitable site manager, who should provide a safety briefing at the beginning of the visit. Dangerous areas should be pointed out clearly or marked off. The use of fluorescent vests and hard hats is recommended.

Learners should have access to good quality modern tools and equipment for measuring tress and estimating parameters such as basal area/hectare. For working in wet weather, waterproof pads and pencils may be useful when carrying out woodland surveys. Learners will require adequate supervision and resources when working in small groups.

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 of the unit.
Assignment 1: Producing a Management Plan (P1, P2, P3, P4, M2)
Tutor introduces the assignment brief.
Collecting woodland data.
Interpreting the data collected.
Using the data collected to compile a management plan. Includes time for independent research of various sources.
Preparing a presentation of the management plan.
Presenting the management plan to an audience and justifying its recommendations, including time to answer questions.
Assignment 2: Presenting and summarising data (M1, D1)
Tutor introduces the assignment brief.
Explanation of the importance of data for informing decisions.
Evaluation of data presented and recommending alternative methods of presentation.
Assignment 3: Management Objectives (P5, P6, P7, M3)
Tutor introduces the assignment brief.
Investigating the different uses of woodlands.
Comparing uses and investigating potential conflicts.
Formulating objectives for woodland management.
Justifying objectives for a woodland site.
Assignment 4: Management Planning (P8, P9, P10, M4, D2)
Tutor introduces the assignment brief.
Reading management plans; investigating structure, content, formats and presentation styles.
Evaluating management plans based on given criteria.
Discussing the importance of the five factors (legal, environmental, financial, users/stakeholders and physical) that influence the management of woodlands.
Assessing woodlands for different uses.
Unit review.

Assessment

For P1, learners must collect and record data relevant to woodland. Tutors should specify the type of data to be collected which will be both general in nature and specific to a local forest or woodland. Some of the information will be collected by direct measurements and some from existing reports or external sources. Suitable evidence would be practical observation records or worksheets.

For P2, learners must interpret and present the data collected in P1. Learners should be able to use the collected raw data and produce appropriate summaries. A portfolio of graphs, tables and written summaries would be suitable evidence. Where possible, to ensure assessment is fair the size and complexity of the tasks should be the same for all learners.

For P3, learners must produce a management plan for a given woodland site. The timespan of the plan should be directed by the tutor, but must be a minimum of five years. The plan should be based on collected data which could be that collected as part of P1 and should consider operational and health and safety requirements. Tutors should identify the site, or agree it through discussion with learners. Where possible,

to ensure assessment is fair the size and complexity of the tasks should be the same for all learners. Suitable evidence would be a written report.

For P4, learners must present a management plan to a given audience in an appropriate manner. Tutors should identify the type of audience. This could be a group of ramblers, bird watchers, local residents or the Conservation Board of an Area of Outstanding Natural Beauty. Suitable evidence could be a practical observation record or an oral presentation, using appropriate software, with accompanying notes.

For P5, learners are expected to discuss the uses of woodlands. Suitable evidence could be a leaflet or an annotated poster.

For P6, learners need to explain the potential conflicts that may exist between different woodland uses. Suitable evidence could be an annotated poster or a short written report.

For P7, learners are required to explain selected woodland management objectives. Tutors should specify the objectives. There is scope for creativity and variety in this activity. A written report, individual learner presentation, recorded group discussion, or seminar activities could all be used as evidence.

For P8, learners need to explain the structure, content and presentation of a woodland management plan. Suitable evidence could be an annotated poster, an oral presentation with accompanying notes, or a written report.

For P9, learners are expected to explain how to achieve the best balance between present and potential woodland uses covering five factors that influence the management of woodland (legal, environmental, requirements of woodland users, economic/financial and physical). Suitable evidence could be a written report or an oral presentation with accompanying notes.

For P10, learners need to explain techniques used to assess woodlands. A minimum of three different techniques should be considered. Suitable evidence could be an annotated poster, written report or an oral presentation with accompanying notes.

For M1, learners must explain how selected, summarised data and information can be used to help develop a given forest or woodland management plan. Tutors should identify the information and management plan, or agree them through discussion with learners. The information used in P1 could be used here. Where possible, to ensure assessment is fair the size and complexity of the tasks should be the same for all learners.

For M2, learners need to justify the recommended schedule of activities within a management plan. This could be the same management plan as for P3. Suitable evidence could be an extension of P4, such as an oral presentation.

For M3, learners are required to justify selected management objectives for a forest or woodland site. This is likely to be based on the objectives and site selected for P7. There is scope for creativity and variety in this activity. A written report, individual learner presentation, recorded group discussion, or seminar activities could all be used as evidence.

For M4, learners are expected to assess the suitability of a woodland for given activities. Tutors should identify the activities or agree them through discussion with learners. Suitable evidence could be an illustrated leaflet, oral presentation with accompanying notes or an annotated poster.

D1 requires learners to evaluate the presentation of information and suggest improvements. The evaluation should include aspects such as clarity, accuracy and usefulness. Suitable evidence could be a written report or individual learner presentation.

For D2, learners are expected to evaluate a selected management plan document and suggest improvements. This could be the management plan produced for P3. The evaluation should include aspects such as clarity, structure, accuracy, completeness, omissions, possible errors or uncertainties, further information or data to collect, and possible changes to recommendations or activities. Evidence could be a written report or individual learner presentation.

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, P2, P3, P4, M2	Producing a Management plan	You are working as a forester on a small country estate. The owner has recently purchased some adjoining land that includes a woodland. She has asked you to write a management plan for the woodland as part of an application for a government grant scheme.	Written report. Oral presentation with accompanying notes.
M1, D1	Presenting and Summarising Data	As a new employee of the Forestry Commission, you have been given some mensuration information from one of your forest compartments. Although the information is reliable, it does not make much sense. Before you can use it, you must first put it in a format that is easy to understand.	Written report. Oral presentation with accompanying notes.
P5, P6, P7, M3	Management Objectives	You are the local officer for the Woodland Trust which has recently acquired a new wood in your area. The Trust is keen to gain the support of the local population. Your job is to formulate management objectives for the woodland that will balance the differing demands of the local community.	Annotated poster. Illustrated leaflet. Oral report with accompanying notes.
P8, P9, P10, M4, D2	Management Planning	As a tree and woodland officer for a local council, you have to attend a meeting of the Environment Committee. You have asked for funding to write a new management plan for a popular woodland site owned by the council. You have been called to the meeting to explain to officers what a management plan is and why you need one.	Oral presentation with accompanying notes. Written report. Annotated poster.

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
	EC24
Undertake Work Related Experience in the Land-based Industries	Undertake and Review Work Related Experience in the Land-based Industries
Presentation and service for retailing in the Land-based Sector	Undertake Retail Merchandising for the Land-based Sector

Essential resources

Learners should have access to woodlands of varying sizes and ownership and with differing objectives. In addition, learners should be provided with a range of management plans to allow them to appreciate differing formats and content emphases. Learners will need access to good quality equipment for surveying woodlands and obtaining management data. A supply of high visibility vests and hard hats is also advised for personal protection while working in woods.

Employer engagement and vocational contexts

For this unit, centres are encouraged to make links with local country estates, the Woodland Trust, the Forestry Commission, county wildlife trusts and other local woodland organisations. A visit to a local sawmill is also advised so that learners can appreciate the conversion process within a business context.

Indicative reading for learners

Textbooks

Broad K – *Caring for small woods: a practical manual for woodland owners, woodland managers, woodland craftsmen, foresters, land agents, project officers, conservationists, teachers and students* (Earthscan, 1998) ISBN 1853834548

BTCV and Agate E – *Woodlands: a practical handbook* (BTCV Enterprises, 2002) ISBN 0946752338

Buckley G P – *Ecology and management of coppice woodlands* (Chapman & Hall, 1992) ISBN 0412431106

Fuller R J – *Coppiced Woodlands: Their management for wildlife* (Joint Nature Conservation Committee, 1993) ISBN 1873701322

Harmer R and Howe J – *The silviculture and management of coppice woodlands* (Forestry Commission, 2003) ISBN 085538591X

Hart C – *Alternative silvicultural systems to clear cutting in Britain: a review* (Forestry Commission, 1995) ISBN 0117103349

Hart C – *Practical Forestry for the Agent and Surveyor* (Alan Sutton, 1991) ISBN 0862999626

JNCC – *Field guide to woodland* (Joint Nature Conservation Committee, 2004) ISBN 1861075235

Mackie E and Matthews R – *Timber measurement* (Forestry Commission, 2008) ISBN 9780855387495

Matthews R W and Mackie E D – *Forest mensuration: a handbook for practitioners* (Forestry Commission, 2006) ISBN 0855386215

Peterken G F – *Woodland conservation and management* (Chapman & Hall, 1993) ISBN 0412557304

Rackham O – *Ancient Woodland; its history, vegetation and uses in England* (Nottingham University Press, 2003) ISBN 1897604270

Starr C – *Woodland management – a practical guide* (Crowood, 2005) ISBN 1861267894

Journals

British Wildlife

Quarterly Journal of Forestry

Small Woods

Websites

www.btcv.org.uk

British Trust for Conservation Volunteers

www.forestry.gov.uk

Forestry Commission

www.rfs.org.uk

Royal Forestry Association

www.smallwoods.org.uk

Small Woods Association

www.woodlandtrust.org.uk

Woodland 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 a woodland survey and analysing the results formulating management objectives for different purposes assessing the different perspectives of woodlands
Reflective learners	presenting a management plan to a group and answering questions and receiving feedback
Team workers	working together on field surveys of woodlands preparing a joint presentation on the management plan for a woodland
Self-managers	planning and preparing for the presentation of a woodland management plan to an audience
Effective participators	explaining the benefits of a management plan to a given audience describing the best methods to meet management objectives.

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	carrying out field surveys of woodlands and coping with adverse conditions, such as difficult terrain or thick vegetation.

● 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	interpreting and analysing data from field surveys of woodlands
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	
Manage information storage to enable efficient retrieval	
Follow and understand the need for safety and security practices	
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	carrying out research on the site description, past management and local history of a woodland
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	planning which information to select and use for the PowerPoint presentation
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 	preparing written reports such as the management plan presenting a management plan to a given audience creating an annotated poster showing the multiple uses of woodland
Bring together information to suit content and purpose	putting together the management plan from several sources and types of information
Present information in ways that are fit for purpose and audience	creating an oral presentation or an annotated poster for presenting a management plan to an audience writing a management plan in a professional style
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	contacting others by email for information
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	
Identify the situation or problem and the mathematical methods needed to tackle it	analysing information from woodland surveys
Select and apply a range of skills to find solutions	carrying out complex calculations on data obtained from woodland surveys

Skill	When learners are ...
Use appropriate checking procedures and evaluate their effectiveness at each stage	providing management recommendations based on numerical data
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	discussing the logistics and complexities of carrying out field surveys of woodlands
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	researching different management methods to compile recommendations for the management plan
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	<p>producing clear and concise posters that communicate key points and concepts effectively using a minimum of words</p> <p>providing a persuasive argument of the benefits of the recommendations within a management plan for meeting given objectives.</p>