Higher National Unit specification

General information for centres

Unit title: Forestry: Woodland Ecology

Unit code: F403 35

Unit purpose: This Unit is designed to give the candidate knowledge of woodland ecosystems, their formation, their plant composition and structure, and their associated biodiversity.

On completion of the Unit the candidate should be able to:

1 Evaluate the development of terrestrial ecosystems.
2 Analyse the structure of woodlands.
3 Use various survey and sampling methods to delineate the borders of plant communities.

Credit points and level: 1 HN credit at SCQF level 8: (8 SCQF credit points at SCQF level 8*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit is at the discretion of the centre. Prior knowledge via the HN Unit F3YW 34 *Forestry: Forest Science* would be helpful to the candidate.

Core Skills: There are opportunities to develop the Core Skills of *Communications*, *IT* and *Working with Others* to SCQF level 5 although there is no automatic certification of Core Skills or Core Skill components.

Context for delivery: If this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

Assessment: Outcome 1 will be assessed by restricted response questions while Outcomes 2 and 3 could be assessed by a report submission that will determine plant communities according to a published scheme.

Higher National Unit specification: statement of standards

Unit title: Forestry: Woodland Ecology

Unit code: F403 35

The sections of the Unit stating the Outcomes, Knowledge and/or Skills, and Evidence Requirements are mandatory.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Candidates should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Evaluate the development of terrestrial ecosystems

Knowledge and/or Skills

- Plant succession
- Soil development
- Ecosystems
- Environmental factors
- Biodiversity
- Habitats
- Food chains, food webs, trophic levels, energy transfer
- Decomposition process

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- explain the role of plant succession and soil development in terrestrial ecosystems since the Ice Age.
- evaluate the role of environmental factors involved in the development of terrestrial ecosystems.
- explain the terrestrial ecosystems of woodlands, grassland and moorland. For each ecosystem the candidates must explain the associated plant and animal diversity appropriate to each ecosystem.
- evaluate the importance of the decomposition process and the organisms involved to woodland ecosystems and the communities they support.
- evaluate the biodiversity within a woodland ecosystem. The evaluation must include food chains, food webs, trophic levels and energy transfer.

The assessment of this Outcome must take the form of closed-book restricted response questions.

Assessment Guidelines

As per the Evidence Requirements the assessment of this Outcome will take the form of a closed-book restricted response assessment.

Higher National Unit specification: statement of standards (cont)

Unit title: Forestry: Woodland Ecology

Outcome 2

Analyse the structure of woodlands

Knowledge and/or Skills

- Plant life cycles
- Plant life strategies
- Reproductive strategies
- Vegetative propagation
- Seed dispersal.
- Indicator plant species
- Plant stratification
- Woodland habitats
- National Vegetation Classification (NVC)
- Ecological Site Classification (ESC)
- Woodland history

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- analyse the stratification of plants within a woodland community. The analysis must include plant life cycles and strategies. The analysis must also include reproductive strategies including vegetative propagation and seed production and dispersal.
- identify a minimum of 25 indicator plant species and for each plant explain the relationship between indicator species and soil factors. The soil factors must include moisture status, nutrient status and shade tolerance.
- identify a minimum of five different woodland habitats and apply an appropriate NVC to each.
- analyse the structure of a woodland, the analysis must include plant stratification, lateral variation and stand history (time).

Assessment Guidelines

This Outcome could be assessed with Outcome 3 by the preparation of a report that will determine plant communities according to a published scheme (NVC) of a given or agreed area of ecologically diverse woodland.

Site visits could be carried out in class time under supervision. The report could be unsupervised and undertaken in the candidates' own time.

The use of maps, tables, diagrams and photographs should be encouraged in order to keep the text of the report within a guideline limit of 1,000 words or equivalent.

Higher National Unit specification: statement of standards (cont)

Unit title: Forestry: Woodland Ecology

Outcome 3

Use various survey and sampling methods to delineate the borders of plant communities

Knowledge and/or Skills

- Monitoring methods
- Survey methods
- Sampling methods

Evidence Requirements

Candidates will need evidence to demonstrate their knowledge and/or skills by showing that they can:

- use the monitoring method appropriate to the given site to evaluate changes
- use the survey and sampling methods appropriate to the given site to delineate the boundaries between plant communities

Assessment Guidelines

This Outcome could be assessed with Outcome 2 by the preparation of a report that will determine plant communities according to a published scheme (NVC) of a given or agreed area of ecologically diverse woodland.

Site visits could be carried out in class time under supervision. The report could be unsupervised and undertaken in the candidates' own time.

The use of maps, tables, diagrams and photographs should be encouraged in order to keep the text of the report within a guideline limit of 1,000 words or equivalent.

Administrative Information

Unit code: F403 35

Unit title: Forestry: Woodland Ecology

Superclass category: RH

Original date of publication: August 2008

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Version	Description of change	Date

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Higher National Unit specification: support notes

Unit title: Forestry: Woodland Ecology

This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This Unit is designed as a mandatory part of the following SQA Group Awards:

- HND Forestry
- HND Arboriculture and Urban Forestry

The content of this Unit should provide the candidate with an understanding of the dynamic processes, which have created the ecological richness found within the UK.

This Unit should gives the candidate the opportunity to visit several contrasting woodland sites to collect and assess information, and to encourage site assessment.

Outcome 1

- process of succession, pioneer and climax plant communities
- relationship between plant communities and soil condition
- abiotic and biotic influences, including Man
- woodland, grassland and moorland habitats
- trophic levels, food chains, food webs, energy transfer
- the decomposers, nutrient cycling (N, P, K)

Outcome 2

- biological and historical development of woodland structure
- annual, biennial and perennial life cycles
- reproductive strategies; seeds, vegetative propagation
- relationship between indicator species and soil condition. Ecological Site Classification (ESC)
- association and interaction between plant and animal communities and their conservation potential

Outcome 3

- photographs, quadrats, transects, GIS
- Phase One habitat survey, National Vegetation Classification (NVC)

Higher National Unit specification: support notes (cont)

Unit title: Forestry: Woodland Ecology

Guidance on the delivery and assessment of this Unit

The assessment of Outcome 1 must take the form of closed-book restricted response questions.

The assessment of Outcomes 2 and 3 could be assessed by the preparation of a report that will determine plant communities according to a published scheme (NVC) of a given or agreed area of ecologically diverse woodland.

Site visits could be carried out in class time under supervision. The report could be unsupervised and undertaken in the candidates' own time.

The use of maps, tables, diagrams and photographs should be encouraged in order to keep the text of the report within a guideline limit of 1,000 words or equivalent.

Opportunities for developing Core Skills

The candidates will have the opportunity to develop the Core Skills of *Communication* in Outcomes 2 and 3 when producing and sharing information. They will also have the opportunity to develop the Core Skill of *IT* when producing their report for assessment of Outcomes 2 and 3 and *Working with Others* during class time throughout all three Outcomes and site visits working with other candidates, tutor and site representatives all to SCQF level 5 although there is no automatic certification of Core Skills or Core Skill components.

Open learning

All Outcomes are appropriate for Open and Distance Learning approaches, with appropriate tutor input and support.

Centre-devised supervision agreements should entail controlled conditions to ensure authenticity of evidence.

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* **(www.sqa.org.uk)**.

General information for candidates

Unit title: Forestry: Woodland Ecology

This Unit is designed to provide you with a good understanding of the factors and processes influencing the development of woodlands and the biodiversity they sustain. The Unit will provide you with the required skills and knowledge of woodland ecosystems, their formation, their plant composition and structure, and their associated biodiversity.

The Outcomes that you will acquire on completion of the Unit are as follows:

Outcome 1 will give you an understanding of terrestrial ecosystems and the processes underpinning their development.

Outcome 2 will give you an understanding of woodlands, their plant composition and dynamics.

Outcome 3 will enable you to survey woodlands to determine the boundaries between habitats and to establish dynamic changes in plant populations over time.

Overall, the knowledge and skills acquired in this Unit will help you understand the factors and processes, which influence the development of woodlands and the biodiversity they sustain. The Unit will involve practical site work to provide you with the required skills and knowledge to assess woodland sites.

For candidates already in employment, this Unit provides an opportunity to extend existing knowledge and skills, laying a sound grounding for further study in the fields of woodland management, conservation and ecological science.

This Unit will give you the opportunity to develop the Core Skills of *Communication*, *IT* and *Working with Others* to SCQF level 5.

The Unit will be assessed by restricted response questions and a report submission that will determine plant communities according to a published scheme.