



National Unit specification: general information

Unit title: Ecology and Wildlife Identification (SCQF level 5)

Unit code: FV5G 11

Superclass: QA

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Version: 02

Summary

This Unit is designed to improve the candidate's knowledge and understanding in two main areas. The first area is the inter-relationships between organisms and between organisms and their environment. The second area is the identification of species and habitats and keeping a basic field notebook. This will better enable candidates to undertake ecological investigations and biodiversity surveys.

This Unit is suitable for those people seeking to establish a career in the management of the natural heritage.

This Unit is a mandatory Unit in the National Certificate in Countryside Management, but is also available for candidates wishing to study the Unit in its own.

Outcomes

- 1 Define ecological terms and explain the impact of human activity on an ecosystem.
- 2 Identify and record species and habitats.
- 3 Carry out an ecological investigation.

Recommended entry

While entry is at the discretion of the centre, candidates would normally be expected to have attained one of the following, or equivalent:

- ◆ Standard Grade Biology at grade 1 or 2.
- ◆ Managing Environmental Resources at Intermediate 1.
- ◆ Experience of working as a volunteer in the natural heritage.

General information (cont)

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Credit points and level

1 National Unit credit at SCQF level 5: (6 SCQF credit points at SCQF level 5*)

**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.*

Core Skills

Achievement of this Unit gives automatic certification of the following Core Skills component:

- ◆ Critical Thinking at SCQF level 5

There are also opportunities to develop aspects of Core Skills which are highlighted in the Support Notes of this Unit specification.

National Unit specification: statement of standards

Unit title: Ecology and Wildlife Identification (SCQF level 5)

Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Define ecological terms and explain the impact of human activity on an ecosystem.

Performance Criteria

- (a) Define terms used in the description of ecosystems.
- (b) Describe energy transfer in ecosystems.
- (c) Describe nutrient cycling in ecosystems.
- (d) Describe the effects of human activity on an ecosystem.

Outcome 2

Identify and record species and habitats.

Performance Criteria

- (a) Identify habitats in a given situation.
- (b) Identify characteristic species associated with the habitats identified.
- (c) Identify species of flora and fauna.
- (d) Record information which aids the identification of flora and fauna observed in an appropriate format.

Outcome 3

Carry out an ecological investigation.

Performance Criteria

- (a) Define the scope of an ecological investigation at a named site.
- (b) Collect data on the abiotic component of the ecosystem.
- (c) Collect data on the biotic component of the ecosystem.
- (d) Present the data in an appropriate format.
- (e) Describe the methodologies used.
- (f) Draw valid conclusions.

National Unit specification: statement of standards (cont)

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Evidence Requirements for this Unit

Written and/or oral recorded evidence is required to demonstrate that candidates have achieved all Outcomes and Performance Criteria.

Outcome 1

The candidate will provide evidence of understanding for eight of the following ecological terms. A minimum of one must be drawn from each of the sections 1–4 below:

◆ **Section 1**

The definition of ecological terms, each illustrated by an example:

- Ecosystem
- Biotic component
- Abiotic component
- Habitat
- Niche
- Species
- Population
- Competition
- Adaptation
- Predation

◆ **Section 2**

Energy transfer in ecosystems:

- Producers
- Consumers
- Food chain
- Food web
- Pyramid of biomass

◆ **Section 3**

Nutrient cycling in ecosystems:

- Carbon

◆ **Section 4**

The effects of human activity on a named ecosystem:

- Two positive effects
- Two negative effects

The assessment for this Outcome is open-book.

National Unit specification: statement of standards (cont)

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Outcome 2

Evidence must include:

- ◆ Identification of five habitats in a given situation:
 - List five characteristic species of each habitat
- ◆ Identification of 15 species of flora and fauna by common name which must include:
 - A minimum of five plants
 - A minimum of five animals
- ◆ Recording field observations which aid the identification of flora and fauna

A minimum of five species must be identified under closed-book conditions.

Outcome 3

Evidence must include:

- ◆ Definition of the scope of an ecological investigation which must include:
 - Outline of the investigation
 - What is to be investigated
 - Why the investigation is being carried out
- ◆ Collection of data on an ecosystem covering:
 - Biotic
 - Abiotic
- ◆ Description the methodologies used in data collection
- ◆ Presentation of the data in an appropriate format
- ◆ Draw conclusions which reflect the scope of the investigation

National Unit specification: support notes

Unit title: Ecology and Wildlife Identification (SCQF level 5)

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 aligned to the following LANTRA National Occupational Standards (NOS):

- ◆ EC2 Survey and report on the condition of the environment
- ◆ EC23 Prepare, conduct and report on field surveys

Wildlife identification skills are a requirement when carrying out any ecological surveying work and once basic approaches are understood, development of this skill is through practice. Utilising wildlife identification skills to undertake ecological surveys is a very practical and effective way to develop an introductory understanding of ecology and ecosystems. Furthermore, knowledge of ecological terms/principles and basic habitat and species identification are essential natural heritage management skills and this is reflected by the increasing role of ecological assessment in developments impacting on the natural heritage such as new wind farms. The increase in such developments is also leading to increasing job opportunities in ecological surveying.

In relation to Outcome 2, the ability to identify habitats and some of the common plants and animals found within them is a fundamental skill in required of many job roles in the wider countryside management sector. Whether this is to have a clear and detailed understanding of a given site to support the creation of a site management plan, or being able to identify the invasive vegetation that you have been asked to clear from a site. Knowing how information which has been used to identify species in the field can be accurately recorded is again a skill that has many applications. Information recorded during field observations might include: site name, location, habitat, any designations, date, time, weather, field equipment used, species list, notes on behaviour, details of any species interactions observed, field sketches of any unidentified species for use later in the office. A variety of means of identification could be introduced to candidates and might include identification by: sight; using identification keys; using guide books; sound/calls and signs such as tracks or droppings.

Outcome 3 — when carrying out an ecological investigation, candidates should understand the importance of being able to record both biotic and abiotic elements of the ecosystem so as to develop a clearer and more detailed understanding of the ecosystem or any component of it. Knowing how to carry out ecological investigations will provide experience and understanding which may enhance access to employment. This will be gained by activities such as: decision making in relation to what is to be investigated; knowledge of approaches to data collection; reflecting on the data gathered and drawing conclusions from the investigation.

National Unit specification: support notes (cont)

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Guidance on learning and teaching approaches for this Unit

This Unit could be delivered by a mixture of class based study to introduce ecological principles and terms and to consider habitats and their associated species. Class based work could also be used to introduce approaches to species identification. A series of formative assessments could be used to support the development of identification skills.

Classroom based approaches should be supported by numerous site visits to look at habitats and identify flora and fauna found in them to help develop an understanding of some of the common species associated with common habitat types. Field visits should support in class learning and a range of identification techniques could be utilised in the field such as:

- ◆ Guides (eg rangers, site managers)
- ◆ Reference books/ID guides
- ◆ Keys
- ◆ Own knowledge/ability/specialism's (tutor/candidate/candidate peers)

Encouragement should be given for candidates to be able to accurately identify some common and widely distributed species of flora and fauna without reliance on identification guides all of the time. Field visits should be to a variety of habitats and could include upland and lowland examples, as well as freshwater and marine examples, such as woodland, grassland, marsh, loch, river, and estuary. Field visits could be recorded in a logbook.

Guidance on approaches to assessment for this Unit

Outcome 1

This could be assessed by a series of restricted response questions which demonstrate the candidates understanding of ecological terms and principles.

Outcome 2

- ◆ Open-book:
 - Logbook record of field work/visits.
 - Identification of some of the 15 species of flora and fauna by the use of ID guides while out in the field or back in the class.
- ◆ Closed-book:
 - Identification of five species under closed-book conditions.

Outcome 3

This could be assessed as an open-book project and report which details the methods used, results obtained and conclusions drawn in relation to an ecological investigation identified by the candidate.

National Unit specification: support notes (cont)

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Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

Through the activities required in the study of this Unit, there will be opportunities for candidates to develop Core Skills in:

- ◆ *Communication:*
 - Production of the written/oral assessment material
 - Interactions on field trips and in class discussion
- ◆ *Information and Communication Technology (ICT):*
 - Use of online identification resources
 - Word processing reports
- ◆ *Problem Solving:*
 - Identifying species and habitats which aren't familiar

This Unit has the Problem Solving component of Critical Thinking embedded in it. This means that when candidates achieve the Unit, their Core Skills profile will also be updated to show they have achieved Critical Thinking at SCQF level 5.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date
02	Core Skills Component Critical Thinking at SCQF level 5 embedded.	28/11/2011

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