



Australian Government

MSL975045 Perform laboratory-based ecological techniques

Release: 1

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Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL975017 Perform laboratory-based ecological techniques. Changes to elements and performance criteria. Foundation skills information added. Range of conditions removed. Assessment requirements amended.

Application

This unit of competency describes the skills and knowledge to participate in laboratory investigations involving animals, plants and related environmental parameters. The animals or plants might be single specimens, parts of specimens or be in culture or under propagation. The investigations might also be part of experimental models that examine interactions of animals and/or plants and their environments. Investigations would generally relate to taxonomy, physiology and pathology, and would be oriented to scientific research, food production and manufacture, and to investigation of biological environments and ecosystems.

This unit applies to laboratory technicians and technical officers working in biological, biotechnology and environmental industry sectors. It is expected that all work would conform to statutory and work health and safety (WHS) codes of practice. This unit of competency assumes that personnel perform tests and procedures under the close supervision of scientific staff and that the workplace will equip its workers with relevant animal handling skills should they be required. The unit does not cover procedures related to the handling of vertebrates that are subject to national and state/territory animal care and ethics regulations.

No licensing or certification requirements exist at the time of publication. However, regulations and/or external accreditation requirements for laboratory operations exist, so local requirements should be checked. Relevant legislation, industry standards and codes of practice within Australia must also be applied.

Pre-requisite Unit

MSL974021 Perform biological procedures

Competency Field

Testing

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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| 1 | Process specimens and documentation | 1.1 Identify specimens and request forms that do not comply with minimum industry requirements for labelling, identification and test requests |
| | | 1.2 Record any discrepancies and indicate what action is required |
| | | 1.3 Log samples, recording details that allow accurate tracking and chain of custody |
| 2 | Participate in the identification and classification of species | 2.1 Record macroscopic and/or microscopic details of specimens to assist in their identification and classification |
| | | 2.2 Use taxonomic keys to assist in the identification and classification of species |
| | | 2.3 Perform laboratory analyses that can assist in identification and classification of species |
| | | 2.4 Preserve specimens for future reference |
| | | 2.5 Label preserved specimens for storage and reliable retrieval from collections |
| 3 | Maintain viability and integrity of specimens during experimentation | 3.1 Provide nutrients and environments to maintain viability of individual specimens and organisms being cultured or propagated |
| | | 3.2 Perform procedures and analyses to monitor the experimental environment |
| | | 3.3 Perform procedures and analyses to monitor the physiology of organisms in the experimental environment |

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	3.4 Adjust nutrient requirements and environmental conditions as indicated by monitoring data
	3.5 Report (to supervisors) data and phenomena that may risk viability of individual specimens or cultures
	3.6 Report (to supervisors) data and phenomena that are incompatible with the experimental design parameters
4 Integrate laboratory and field data	4.1 Locate field data relevant to the study or experiment
	4.2 Match field and laboratory data codes for tracking, reporting and chain of custody requirements
	4.3 Log field and laboratory data into information systems
	4.4 Assist with writing reports of experiments and related field studies

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Oral communication skills to interact effectively and use appropriate scientific terminology and technical concepts to report data and phenomena that may risk viability of individual specimens or cultures, or are incompatible with the experimental design parameters.

Other foundation skills essential to performance are explicit in the performance criteria of this unit.

Unit Mapping Information

Equivalent to MSL975017 Perform laboratory-based ecological techniques, Release 1.

Links

Training Package Companion Volumes -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa>

Assessment Requirements for MSL975045 Perform laboratory-based ecological techniques

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- effectively identified and classified at least 5 different animal and plant species for scientific and experimental purposes
- processed, labelled, preserved and stored at least 5 different kinds of specimens, taking care not to contaminate sterile environments or specimens
- performed procedures and analyses to monitor the physiology of 5 different organisms/specimens in the experimental environment and maintained their viability.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- growth requirements of organisms that are subjects of laboratory or greenhouse culture or propagation relevant to job role
- general anatomy of plants and animals that is useful as classification data
- processes that are essential for preservation of plant and animal material for use as reference material
- relationships between field and laboratory data that are useful in giving commentary on the integrity or distress in biological environments
- rationale for selection of techniques used to monitor the experimental environment and the effects of variables on organisms in the experimental environment
- uses of environmental impact statements that incorporate the results of field and laboratory analyses
- workplace and/or legal traceability requirements
- awareness of environmental sustainability issues as they relate to the work task

- legal, ethical and work health and safety (WHS) requirements specific to the work task including traceability, confidentiality and security requirements of all client information, and laboratory data and records.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
 - equipment and resources for investigating the physiology of plants and animals in the laboratory
 - workplace procedures, sampling plans, test methods and equipment manuals
 - computers and programs for simulated experiments or data analysis
 - items of equipment, reagents, specimens and systems for botanical and zoological techniques
 - laboratory information management systems (LIMS), databases, record and filing systems, including specimen accessioning.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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