

## MAINTAIN ENVIRONMENTAL ECOLOGY

**ISCED UNIT CODE: 0521 451 08A**

**TVET CDACC UNIT CODE: ENV/CU/ENT/CR/03/5/MA**

### **UNIT DESCRIPTION**

This unit covers the competencies required to perform environmental ecology maintenance, it involves carrying out biological resource inventory, performing plant propagation, maintaining ecological wildlife sanctuary and performing ecological restoration.

### **ELEMENTS AND PERFORMANCE CRITERIA**

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
These describe the key outcomes which make up workplace functions	These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicized terms are elaborated in the range)</i>
1. Carry out biological resource inventory	1.1 <b>Mapping of resources</b> for <b>inventory</b> is carried out as per environmental management and coordination act (EMCA) (conservation of biological diversity) regulation 2016. 1.2 Inventory data collection tools are assembled as per work guidelines. 1.3 <b>Field data collection</b> is carried out <b>as</b> per the field SOPs. 1.4 The inventory is updated as per data collected.
2. Perform plant propagation	2.1 Plant species to be propagated are mapped as per work requirement. 2.2 Plant propagation tools are assembled as per the work requirements. 2.3 <b>Plant propagation</b> is conducted as per institution Agroforestry guidelines 2019. 2.4 <b>Plant growth monitoring</b> is done as per work requirements.
3. Maintain ecological wildlife sanctuary	3.1 Sanctuary wildlife are mapped as per work requirements. 3.2 Data collection tools are assembled as per work requirements. 3.3 Data collection is conducted as per the work requirements. 3.4 <b>Wildlife sanctuary ecosystems</b> are maintained <b>as</b> per Management plan guidelines,2016.
4. Perform ecological restoration	4.1 Degraded ecology is mapped as per SOPs. 4.2 Ecological <b>restoration tools</b> are assembled as per work guidelines. 4.3 Ecological restoration is Conducted as per degraded rehabilitated water ecosystem guidelines, 2017, Rehabilitating. 4.4 Ecological restoration progress monitored as per work requirements.

## RANGE

This section provides a work environment and conditions to which the performance criteria apply. It allows for a different work environment and situations that will affect performance.

Variable	Range
1. Mapping of resources for inventory may include but not limited to;	<ul style="list-style-type: none"><li>• Species distribution mapping</li><li>• Habitat mapping</li><li>• Wildlife corridor mapping</li><li>• Biodiversity hotspots mapping</li></ul>
2. Field data collection may include but not limited to;	<ul style="list-style-type: none"><li>• Questionnaires</li><li>• Interviews</li><li>• Transect surveys</li><li>• Quadrat sampling</li><li>• Netting and trapping</li><li>• Camera trapping</li></ul>
3. Plant mapped may include but not limited to;	<ul style="list-style-type: none"><li>• Plot-based surveys</li><li>• Transect surveys</li><li>• Point-centered quarter</li><li>• Vegetation sampling</li><li>• Species identification</li></ul>
4. Plant propagation may include but not limited to;	<ul style="list-style-type: none"><li>• Grafting propagation</li><li>• Seed propagation</li><li>• Cutting propagation</li><li>• Division propagation</li><li>• Layering propagation</li><li>• Bulb propagation</li><li>• Sucker propagation</li></ul>
5. Plant growth monitoring may include but not limited to;	<ul style="list-style-type: none"><li>• Visual observation</li><li>• Taking measurements</li><li>• Time-lapse photography</li><li>• Leaf area index</li></ul>
6. Wildlife sanctuary ecosystems may include but not limited to;	<ul style="list-style-type: none"><li>• Tropical rainforest sanctuary ecosystems</li><li>• Temperate forest sanctuary ecosystems</li><li>• Desert sanctuary ecosystems</li><li>• Grassland sanctuary ecosystems</li><li>• Wetland sanctuary ecosystems</li></ul>

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| <p>7. Restoration tools may include but not limited to;</p> | <ul style="list-style-type: none"> <li>● Hand trowels</li> <li>● Dibbles</li> <li>● Seed spreaders</li> <li>● Wheelbarrow</li> <li>● Auger</li> </ul> |
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## **REQUIRED KNOWLEDGE AND SKILLS**

This section describes the knowledge and skills required for this unit of competency.

### **Required knowledge**

The individual needs to demonstrate knowledge of:

- Environmental resources
- Wildlife sanctuary ecosystems
- Resource inventory
- Plant growth
- Ecological restoration
- Grafting methods
- Sanctuary Ecosystem
- Plant growth monitoring
- Sampling skills
- Surveying skills
- Mapping Skills

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### **Required skills**

The individual needs to demonstrate the following skills:

- Monitoring and evaluation
- Data collection
- Observation Skills
- Measuring skills
- Reporting skills
- Problem-solving skills
- Propagation skills
- Sampling skills

### **EVIDENCE GUIDE**

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills range.

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> <li>1.1 Carried out Mapping of resources for inventory as per environmental management and coordination act (EMCA) (conservation of biological diversity) regulation 2016</li> <li>1.2 Carried out <b>Field data collection</b> as per the field SOPs</li> <li>1.3 The inventory is updated as per data collected.</li> <li>1.4 Conducted <b>Plant propagation</b> as per institution Agroforestry guidelines 2019</li> <li>1.5 Maintained <b>wildlife sanctuary ecosystems</b> as per Management plan guidelines,2016</li> <li>1.6 Maintained <b>wildlife sanctuary ecosystems</b> as per Management plan guidelines,2016</li> <li>1.7 Conducted ecological restoration as per degraded Rehabilitated water ecosystem guidelines, 2017, Rehabilitating</li> </ul>
2. Resource implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"> <li>2.1 Appropriately simulated environment where assessment can take place</li> <li>2.2 Access to relevant work environment</li> <li>2.3 Resources relevant to the proposed activity or tasks</li> </ul>
3. Methods of assessment	<p>Competency in this unit may be assessed through:</p> <ul style="list-style-type: none"> <li>3.1 Practical demonstrations</li> <li>3.2 Oral questioning</li> <li>3.3 Written test</li> <li>3.4 Portfolio of Evidence</li> <li>3.5 Interview</li> <li>3.6 Third party report</li> </ul>
4. Context of assessment	<p>Competency may be assessed:</p> <ul style="list-style-type: none"> <li>4.1 Workplace</li> <li>4.2 Simulated work environment</li> </ul>
5. Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.</p>