The information contained in this publication is based on knowledge and understanding at the time of writing (2015). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up-to-date and to check currency of the information with the appropriate officer of NSW Department of Primary Industries or the user’s independent adviser.

Recognising that some of the information in this document is provided by third parties, the State of New South Wales, the author and the publisher take no responsibility for the accuracy, currency, reliability and correctness of any information included in the document provided by third parties.

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who to contact</td>
<td>4</td>
</tr>
<tr>
<td>Welcome</td>
<td>5</td>
</tr>
<tr>
<td>Introduction to the course</td>
<td>6</td>
</tr>
<tr>
<td>Study guides</td>
<td>10</td>
</tr>
<tr>
<td>Assessment grading</td>
<td>10</td>
</tr>
<tr>
<td>About due dates...</td>
<td>10</td>
</tr>
<tr>
<td>Course policies</td>
<td>11</td>
</tr>
<tr>
<td>Course requirements and competencies</td>
<td>12</td>
</tr>
<tr>
<td>Course structure</td>
<td>16</td>
</tr>
<tr>
<td>Course program</td>
<td>17</td>
</tr>
<tr>
<td>Subject details</td>
<td>18</td>
</tr>
<tr>
<td>Core subjects</td>
<td>18</td>
</tr>
<tr>
<td>Agricultural stream</td>
<td>29</td>
</tr>
<tr>
<td>Bush regeneration stream</td>
<td>36</td>
</tr>
<tr>
<td>Other learning activities</td>
<td>42</td>
</tr>
<tr>
<td>Library resources</td>
<td>42</td>
</tr>
<tr>
<td>Other sources of information</td>
<td>43</td>
</tr>
</tbody>
</table>
Who to contact

Course Coordinator
Delphine Puxty
Education Officer CLM
Phone: 02 4939 8951
Email: delphine.puxty@dpi.nsw.gov.au

Contact Delphine for inquiries about the qualification and for help with assessment tasks.

Course Secretary
Kim Griffiths
Phone 02 4939 8881
Email: kim.griffiths@dpi.nsw.gov.au

Contact Kim for inquiries about payment of fees.

Other contacts
Emma Oke
Education Officer
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Website: www.tocal.nsw.edu.au
Welcome

Welcome to the course. Your course leads to a Diploma of Conservation and Land Management and is part of NSW Department of Primary Industries’ External Courses, one of the most successful rural adult education programs in Australia.

In recent years the Program has developed a range of external modules related to sustainable agriculture and landcare. Because of the increasing importance and interest in these topics, it was decided to offer the modules as an external course so landholders could receive a formal education qualification after studying in this area.

A Certificate in Landcare was offered for the first time in 1995, and this was developed further into the Diploma in Landcare and Natural Resources. With the release of the national Conservation and Land Management Training Package, this course was modified to meet the requirements of the new package in 2003.

For this course, we have taken a number of modules from the Training Package and developed study materials for them, which lead to a diploma qualification. There are other ways of achieving a diploma or other qualifications in Conservation and Land Management, but completing the course through external studies is the method described in this handbook.

We are confident you will find the course a most rewarding experience and well worth the time and effort you will need to spend on it. What could be more rewarding than learning how to take better care of the land for ourselves, our families and future generations?

Please note that email and telephone support is available to enrolled students, but that intensive or frequent one-to-one tuition cannot be provided in this external course. If you have any doubts about your ability to complete the course by external study with limited support, please phone the course coordinator to discuss your situation. If you decide to withdraw within three weeks of receiving your first study materials, a full refund will be available when the materials are returned in good condition.

The staff at Tocal wish you well in the course. We hope you study hard, enjoy it and achieve what you want from it.

Good luck and please call if you would like help or further information.
Introduction to the course

Course aims
The course aims to give you the knowledge, skills and attitudes you need to achieve the following:

- assess the condition of a landscape as a holistic system
- draw up plans for managing and restoring a particular land system for sustainability
- demonstrate landcare and natural resource management skills for sustainable land use
- work effectively with stakeholders, who may be your family, clients, community groups or government agencies on landcare, catchment and natural resource management projects
- understand the legal and policy framework for conservation and natural resource management

How the course works
The course comprises a number of written assignments, maps and plans that you will develop for a land management area of your choice. You will submit assignments on a regular basis and pay for each assignment as you go. Assignments will be assessed by a Tocal staff member with expertise in the subjects.

Most material—readings, videos, discussions and links—will be presented online and you will be expected to contribute to online discussions and forums. You will be supported as you engage with this method of learning. Online materials are available for all subjects, but each one is also available as hard copies and essential references are supplied as part of your course fees.

Online learning
This course is offered online, and we would prefer that you undertake the course entirely online. We have developed this approach because online learning connects you to other learners with whom you can interact and who can support your learning. You will know you are not alone! At the same time it opens up a wide range of resources available on the internet that we can refer to and update regularly to remain current. Online learning injects flexibility into your learning and will make it easier to access resources and complete your assessment tasks.

Background to the course
This course leads to a national Diploma of Conservation and Land Management. It is based on the success of NSW Agriculture’s Farm Management and Farm Office Management External Courses. These courses have been revised and developed for over 25 years to ensure they meet the needs of our clients. The current nationally-accredited diploma is now available for our students to extend their skills and knowledge.

Adult learners have different needs and characteristics than adolescents or children. These characteristics include:

- adults are very selective about what they learn
- they have limited time and have many other activities to take their time and energy apart from learning
- adult learning should be done in a non-threatening environment
- adult learning has to be relevant to the needs of the learner.
Taking these issues into account, the College has developed the course based on identified competencies, following widespread industry consultation.

The course is also based on the principles of problem-based and inter-active learning. In other words, we do not believe that competent land managers or carers need to be experts on every area of land management. Instead, they need to have a thorough knowledge of their particular environment and principles involved in land management. But more importantly, they need to have a mindset and understanding of the issues involved in the stewardship of land and principles of sustainable land use.

We also believe that land cannot really be cared for solely by an individual. You have to involve other people, whether it is members of your own family, your farm workforce, your neighbours or the whole catchment community. It is the involvement of people on a group and community basis that has made the landcare movement different and effective compared with previous initiatives in land conservation.

To get the most out of the course you will need to consult closely with all the stakeholders in the area of land you study, as well as neighbours and government agencies.

If you do this effectively, we believe that this course can help you to bring change and improve land management practices on your own land and in your local community.

Questions that may arise

You may have a number of questions about how the course works. Most of the details will be revealed as you work your way through this handbook. Some questions that may occur to you are answered below.

Is this the course for you?

You may be wondering if this course is the most suitable for your needs. An explanation may help you decide:

The course is especially designed for landholders, farmers, land managers, bush regenerators, landcare workers, weeds officers and students of environmental management. If you are already employed or have experience in a land management or community facilitator role, you may be able to take advantage of Recognition of Prior Learning (RPL), described below. The course is also ideal for land owners who want to chart a course of responsible land management for an area of land they may have recently acquired.

Do you need to own land to complete the course?

Ideally yes, but not necessarily. You will definitely need access to land to complete the project parts of the course.

Each subject asks you to complete a series of assessment tasks, which meet national competencies. To complete all these assessment tasks and gain a Diploma of Conservation and Land Management, you need access to an area of land. The land you use for study projects may belong to you, your family, neighbours, friends, relatives OR local councils or some other government agency. You will need permission to carry out studies on land that is not your own. You should gain this permission before you start the course.
At Diploma level, the emphasis is on managing land areas. If you don’t own land yourself, it is difficult to implement land management decisions, so you will need to simulate some situations to demonstrate you are capable of making management decisions. You should always check the practicality and feasibility of your plans with the stakeholders of the land. We believe you can validly go through the process of management decision-making, even if you don’t own the land. So, if you don’t own or actually manage land, don’t be put off! Explore the options in your local area.

Is the course full-time or part-time?
The course is designed to be completed on a part-time, external basis. Studying part-time is not always easy. Often it has to fit in with work and family commitments and it can be hard to find the time to give it a fair go. That’s why we are as flexible as possible with the course requirements.

If you find it difficult to submit assessment tasks in a reasonable time, please ring the course supervisor to arrange an extension or deferment. We know what it’s like and we will help if we can.

On the other hand, external study is a great way to learn. You can study at your own pace, without a lot of travel to education institutions.

How can your existing skills and experience be recognised?
Completing the course-work is just one way of achieving the Diploma of Conservation and Land Management. The award we offer is from a National Training Package. The training package enables you to gain qualifications from skills or experience you may already have. This is described as Recognition of Prior Learning or RPL (sometimes referred to as Skills Recognition, or even Recognition of Current Competency).

You can gain RPL for what you have already achieved through life or work experience, by formal coursework at other recognised institutions or by attending workshops and training activities. You can then prepare a case for recognition with the course coordinator who will submit your evidence to an accreditation committee.

Because there are a large number of competency units to choose from, you will need to chart a pathway that fully recognises your existing skills and also meets the requirements of the qualification you are seeking. This is best done by consulting fully with your course coordinator, who can also arrange for you to be assessed. Before you do this, study carefully the competencies described on page 12-15 of this handbook, and select the ones you think you may be able to have recognised.

The competencies described in this book apply to diploma-level studies only, but you may be able to gain a qualification at Certificate III or Certificate IV level by skills recognition (only). Discuss this option with the course co-ordinator and read the Recognition of Prior Learning Handbook on the web at www.tocal.nsw.edu.au/courses/Skills-recognition-services.
What are competencies?
A National Training Package sets standards for assessment and describes ways of measuring and recognising an individual’s competence.

In each sector there are units of competence that relate to different workplace functions. These are linked to levels of the Australian Qualifications Framework (AQF).

This means that training pathways for all sectors of agriculture are similar and reflect workplace expectations for the whole of Australia.

For any qualification you need to achieve a basic number of competencies in different areas. Completing the required competencies by course-work is just one way of gaining a qualification.

Fees
Each subject has a standard fee: at time of printing the fee was $475 per unit of competency. An up-front enrolment fee of $950 will entitle you to the first two subjects. This fee changes from time to time, so you will need to check a current brochure for the fees.

There is a fee that applies to RPL that depends on whether you supply all necessary documentation for a ‘desk audit’ or whether you undertake assessment at your place of work (or home). We can let you know what these fees are on application.
Study guides

You will already have noted that all assessment is via assignments that you prepare at home and upload for marking.

You will receive a study guide with each subject that details the learning requirements and how to work your way through the study materials.

All subjects are available via online learning and this is the preferred method of engaging with the course. On enrolment you will be given access to the online learning resources.

Included at the end of each online subject is an Evaluation form that you must complete and submit. It is most important that both the evaluation and the declaration are completed.

Assessment grading

Assessments will be graded with reference to the learning outcomes and competencies for the subject, as follows:

- Not yet competent. you have not yet met the assessment criteria at a basic level or not completed the required work. You can update and resubmit assessment tasks online
- Competent. you have met the assessment criteria at the required level.

The grading you receive for each subject will be shown on an academic transcript issued on completion of the course or if you elect to withdraw without graduating.

About due dates...

As an independent learner we believe you are able to discipline yourself to complete your studies. However, you need to send in your assignments at least every two months. You can draw up your own timetable to achieve this, and we will monitor your progress.

If you have trouble meeting this time commitment, you need to let us know. If you don’t meet your own schedule of studies, your study results will be placed in an ‘inactive’ file and you will need to negotiate with the Coordinator to resume your studies.
Course policies

For information on refunds, appeals regarding assessment, privacy protection, student support and grievances, please see the website:


Online course refund policy

Refunds are available under the following conditions:
1. If within 21 days of enrolment in a subject/course, the subject/course does not meet your expectations, you are eligible for a refund of the fee paid less an administration charge of $75.

2. After 21 days and up to 12 weeks from enrolment, you are eligible for a 30% refund of the fee paid if you withdraw from the subject/course.

3. Written application based on special circumstances can be made to the Principal of Tocal College.

Referencing

A referencing style is a set of rules outlining how to acknowledge the ideas and work of others in a standardised way.

Referencing is an important part of academic writing. It is essential that you use a consistent style in your assessment tasks and research as you progress through your studies at Tocal College.

Different institutions follow different rules for referencing, but one style tends to be recommended by many institutions. This is what is known as the Harvard referencing system.

Here’s an example of how to reference a book in your reference list:

Buchanan, RA 2009 Restoring natural areas in Australia, NSW Industry & Investment, Tocal College.

Not only is it important that you cite any references you use at the end of an assignment, but you must acknowledge any in-text quotes you use. For example:

Buchanan 2009, p.72 notes that soil health is vitally important for the health of the ecosystem.

An alternative is to use footnotes for in-text referencing.

In any course you undertake at Tocal College you should follow the Harvard referencing style to acknowledge any resources such as books, journal articles, reports, case studies, legitimate web pages etc that you use. The following website is a guide to how to use the referencing system in every possible circumstance:

Course requirements and competencies

AHC51110 Diploma of Conservation and Land Management

Qualification Notes
The Diploma of Conservation and Land Management reflects the role of personnel working in management positions with technical level skill in land management roles.

Entry requirements
There are no entry requirements for this qualification.

Qualification pathways

Pathways into the qualification
This qualification may be accessed by direct entry.

Pathways from the qualification
Further training pathways from this qualification include, but are not limited to, Advanced Diploma of Conservation and Land Management.

Australian Apprenticeships
This qualification is suitable for an Australian Apprenticeship.

Job roles
Job roles and titles vary across different industry sectors. Possible job titles relevant to this qualification include lands, parks and wildlife manager and Senior Ranger.

Packaging Rules
Completion of ten (10) elective units.

ELECTIVE UNITS
- a minimum of four (4) units must come from elective group A
- a minimum of four (4) units must come from elective groups A or B
- a maximum of two (2) units may be selected from units aligned to Certificate IV or above in AHC10 or from any other currently endorsed training package or accredited course. Selected units must be relevant to job outcomes in conservation and land management.
ELECTIVE UNITS GROUP A

Indigenous land management
- AHCILM501A: Conduct field research into natural and cultural resources
- AHCILM502A: Develop conservation strategies for cultural resources
- AHCILM503A: Manage restoration of cultural places
- AHCILM504A: Develop strategies for Indigenous land or sea management
- AHCILM505A: Map relationship of business enterprise to culture and country
- AHCILM506A: Operate within community cultures and goals
- AHCILM507A: Plan for successful cultural practice at work
- AHCILM508A: Propose a negotiated outcome for a given area of country
- AHCILM509A: Plan burning activities for natural and cultural resource management
- AHCILM601A: Manage cultural processes in an Indigenous organisation
- SITTGDE009A: Interpret aspects of local Australian Indigenous culture

Lands, parks and wildlife
- AHCLPW501A: Develop a management plan for a designated area
- AHCLPW502A: Manage wildfire hazard reduction programs
- AHCLPW503A: Assess applications for legislative compliance
- AHCLPW504A: Review assessments for legislative compliance
- AHCLPW505A: Implement natural and cultural resource management plans
- AHCLPW506A: Investigate suspected breaches of NRM legislation
- AHCLPW601A: Coordinate the preparation of a regional resource management plan
- NWP512B: Develop and review catchment management plan
- NWP513B: Implement and manage catchment management plan
- NWP516B: Develop and review surface water management plan
- NWP517B: Implement and manage surface water management plan
- NWP518B: Prepare and report on data related to flood mitigation
- NWP519B: Develop and report flood mitigation
- PUAFIR406B: Develop prescribed burning plans
- PRMWM43B: Develop an environmental management strategy
- SRXRES007B: Undertake open space planning
- SRXRES010B: Protect heritage and cultural assets

Natural area restoration
- AHCNAR501A: Manage natural areas on a rural property
- AHCNAR502A: Conduct biological surveys
- AHCNAR503A: Design a natural area restoration project
- AHCNAR504A: Manage natural area restoration programs
- AHCNAR505A: Plan river restoration works
- AHCNAR506A: Develop and implement sustainable land use strategies
### Pest management

- **AHCPMG501A** Coordinate the pest management strategy in a regional or broader context
- **AHCPMG502A** Define the pest problem in a regional or broader context
- **AHCPMG503A** Develop a strategy for the management of target pests
- **AHCPMG504A** Develop a system for monitoring the pest management strategy
- **AHCPMG505A** Evaluate the pest management strategy
- **AHCPMG506A** Manage the implementation of legislation

### Plants

- **AHCPCM502A** Collect and classify plants

### Soil and water conservation

- **AHCSAW501A** Design control measures and structures
- **AHCSAW502A** Plan erosion and sediment control measures
- **AHCSAW503A** Plan conservation earthworks

### ELECTIVE UNITS GROUP B

#### Business

- **AHCBUS501A** Manage staff
- **AHCBUS503A** Negotiate and monitor contracts
- **AHCBUS504A** Prepare estimates, quotes and tenders
- **AHCBUS508A** Prepare and monitor budgets and financial reports
- **TLIR307C** Negotiate a contract

#### Fauna

- **AHCFAU501A** Manage fauna populations

#### Fire

- **AHCFIR501A** Manage wildfire hazard reduction programs

#### Lands, parks and wildlife

- **AHCLPW501A** Develop a management plan for a designated area

#### Machinery operation and maintenance

- **AHCMOM501A** Manage machinery and equipment
- **AHCMOM502A** Implement a machinery management system
- **BSBOHS504B** Apply principles of OHS risk management
- **BSBOHS506B** Monitor and facilitate the management of hazards associated with plant
**Occupational health and safety**

AHCOHS501A  Manage OHS processes

**Natural area restoration**

AHCNAR501A  Manage natural areas on a rural property
AHCNAR502A  Conduct biological surveys
AHCNAR503A  Design a natural area restoration project
AHCNAR504A  Manage natural area restoration programs
AHCNAR505A  Plan river restoration works
AHCNAR506A  Develop and implement sustainable land use strategies
SITTPPD005A  Plan and develop interpretative activities
SITTPPD006A  Plan and develop ecologically sustainable tourism operations

**Natural resource management**

AHCNRM501A  Develop a coastal rehabilitation strategy
AHCNRM502A  Develop a water quality monitoring strategy
AHCNRM503A  Support the implementation of waterways strategies
AHCNRM504A  Interpret and report on catchment hydrology
AHCNRM505A  Provide technical advice on sustainable catchment management
AHCNRM506A  Plan and monitor works projects in catchments and waterways
AHCNRM507A  Manipulate and analyse data within geographic information systems

**Parks and gardens**

AHCPGD503A  Manage parks and reserves
AHCPGD505A  Conduct comprehensive inspection of park facilities

**Work**

AHCWKR502A  Collect and manage data
AHCWKR503A  Prepare reports
AHCWKR508A  Interpret legislation
AHCWKR509A  Provide specialist advice to clients
AHCWKR511A  Develop workplace policy and procedures for sustainability
PSPPM502B  Manage complex projects
PSPPM503B  Close complex projects
Course structure

**CORE SUBJECTS**

Describe a landscape
Group A AHCILM501A - Conduct field research into natural and cultural resources

Collect and classify plants
Group A AHCPCM502A - Collect and classify plants

Conduct biological surveys
Group A AHCNAR502A - Conduct biological surveys

Monitor biodiversity
Group C AHCNAR405A - Monitor biodiversity

Develop a plan for managing target pests
Group A AHCNAR503A - Develop a strategy for the management of target pests

**ELECTIVE SUBJECTS**

**Agricultural stream**

Develop a management plan for agricultural land
Group A AHCNAR401A - Develop a management plan for a designated area

Manage natural areas on a rural property
Group A AHCNAR501A - Manage natural areas on a rural property

Plan for revegetation works
Group C AHCNAR402A - Plan the implementation of revegetation works

Develop sustainable land use strategies
Group A AHCNAR506A - Develop and implement sustainable land use strategies

Prepare a report
Group B AHCWRK503A - Prepare reports

**Bush regeneration stream**

Develop a management plan for bushland
Group A AHCNAR501A - Develop a management plan for a designated area

Design a bushland restoration project
Group A AHCNAR503A - Design a natural area restoration project

Plan bushland revegetation works
Group C AHCNAR402A - Plan the implementation of revegetation works

Manage a bushland restoration program
Group A AHCNAR504A - Manage natural area restoration programs

Prepare a report
Group B AHCWRK503A - Prepare reports
Course program

When to enrol
There are two enrolment periods: January for a February course commencement and June for a July commencement. We expect that you will submit assessment tasks regularly to complete the course within two years. We will keep in contact with you to help you meet this commitment.

We try to make the course as flexible as possible, so if you want to complete the course sooner, that’s fine. You can vary your studies to suit your work and personal commitments and the time you have available.

You will note that there are no compulsory residential schools. Tocal College, however, conducts a wide range of short courses, some of which may be suitable and appropriate for your studies. Each year a short course brochure is available from the college with a timetable of courses. Most are held on weekends.

The subjects we offer in the course as outlined on page 16 cover the essential competencies required for a Diploma and follow a logical pathway to build up your management skills in conservation and land management.

If, however, you would like to pursue other subjects by substituting an appropriate competency for one that we offer, you can negotiate this change with the course coordinator. This can only be done on a limited basis, and you need to be aware of the ‘packaging rules’ that apply to the Diploma. These are shown on page 12.

We will give you online access and send your essential references when you send us the fee for the subject.

You will also need to decide whether you are going to follow the agricultural or bush regeneration stream, but you won’t need to choose a stream until you have completed ‘Develop a plan for managing target pests’.
Subject details

Core subjects

Describe a landscape

This subject starts the process of gathering information about the land you will study. You will investigate sources of knowledge and land ownership. You will collect and generate maps of the area and show its location in relation to the catchment and the natural resources of the area. You will investigate how land use and human activities have impacted on the land and its ecology.

Topics

- The landscape and the catchment
- Landscape features
- Natural systems
- Biodiversity
- Humans and natural systems
- Landcare ethics and practice
- Landscape planning

Learning outcomes

At the end of this subject, you will be able to:

1. Review existing knowledge
   - gather existing information
   - review oral evidence
   - inspect sites
   - access sources of expertise

2. Identify stakeholders
   - identify stakeholders
   - investigate and record land tenure
   - apply protocols
   - comply with privacy requirements

3. Develop a research approach
   - determine objectives of the research
   - techniques are assessed for hazard and risk
   - review existing information
   - identify resources required
   - consult stakeholders
   - establish sampling and recording processes
4. Conduct field investigations
   • undertake consultation and fieldwork
   • adjust methodology
   • observations, records and monitoring meet research objectives
   • document each field operation

5. Develop a process for involving decision-makers
   • define issues to be addressed with interest groups
   • develop a consultation and decision-making process
   • appropriate time is provided for consultation
   • use cultural reference groups where needed

6. Report on the field investigation
   • present results in a form that addresses the research objectives
   • consult stakeholders
   • document legislative requirements
   • determine the significance of the research

Resources:
Brouwer, D (2012) An introduction to landcare, NSW Department of Primary Industries, Tocal
Excerpt from Leopold A (1949) A Sand County Almanac Oxford University Press, New York

This subject fulfils the requirements of the Group A competency AHCILM501A Conduct field research into natural and cultural resources
Core subjects

Collect and classify plants

The purpose of the subject is to develop your competence in collecting and identifying plants by using the correct techniques and equipment. Preserving specimens and recording data on plants is described in this subject.

Topics

- Prepare for collecting and identifying plants
- Access resources and plant ID references
- Collect and preserve plants effectively
- Label and describe plants for a collection

Learning outcomes

At the end of this subject, you will be able to:

1. Prepare for plant collecting
   - confirm purpose and objectives
   - define area, location and/or habitat for collecting
   - determine and prepare resources
   - determine and prepare equipment required
   - identify OHS hazards

2. Collect plant specimens
   - observe collecting ethics
   - note relevant information
   - collect adequate material for identification
   - specimens are correctly tagged and stored

3. Preserve specimens
   - preservation is undertaken while specimen is fresh
   - specimen is cleaned and prepared correctly
   - preserving is carried out by pressing or drying
   - dried specimen is mounted and labelled with accurate information

4. Identify plant specimens
   - identify resources
   - identify and document basic characteristics of a plant
   - use a relevant plant key
   - confirm plant identity
   - plant identity is documented on label

Resources:


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This subject fulfils the requirements of the Group A competency AHCPCM502A Collect and classify plants.
Core subjects

**Conduct biological surveys**

This subject will assist you in choosing the best survey method for your site and help you understand the value of the vegetation you are assessing. Vegetation surveys are used to determine:

- the importance of a site in terms of its vegetation
- the presence of a species in a particular area
- the population size or density of a species
- the distribution of one or more species
- the habitat needs of a species
- the reasons for a species' decline
- whether land or habitat management has been a success
- how populations have changed over time.

The subject will guide you through the accompanying manual 'Vegetation Survey and Assessment – a practical guide' to provide you with the information and ideas you need to undertake a vegetation survey at a site of your choice.

**Topics**

- Define the purpose and design of your survey
- Determine your approach to vegetation surveys
- Conduct the survey and record field data
- Preparing a survey report

**Learning outcomes**

At the end of this subject, you will be able to:

1. Consider the design of the survey.
   - identify the objectives and scope of your survey
   - collect and review previous studies relevant to your survey
   - develop a process for collecting and recording data
   - develop an approach to for processing the data collected
   - develop a draft of your survey design to discuss with experts, the land manager and other stakeholders

2. Determine your survey approach
   - identify survey and data recording methods
   - identify rules for applying chosen survey method
   - identify and control OH&S hazards
   - identify and source tools and equipment needed
   - schedule survey activities
   - document survey procedures
3. Conduct the survey
   • conduct an initial field visit to familiarise yourself with the site
   • conduct the survey applying your chosen method
   • monitor survey activities for accuracy and consistency
   • data collection is carried out according to survey design
   • record all data promptly and accurately

4. Compile a survey report
   • analyse data collected
   • draw conclusions from the data highlighting the evidence
   • produce a report that contains a suitable structure and the relevant information and data
   • report describes findings linked to initial aims and objectives and provides recommendations where necessary

Resources:

This subject fulfils the requirements of the Group A competency *AHCNAR502A Conduct biological surveys*
Core subjects

Monitor biodiversity

This subject covers the process of monitoring biodiversity. Changes in land use will lead to changes in the types and balance of organisms in the environment.

Biodiversity is something we want to encourage—it has many benefits and is a direct indicator of the health of a landscape.

By monitoring biodiversity, we set benchmarks for future management.

Monitoring biodiversity requires a knowledge of ecology, plant and animal classification, monitoring systems for flora, fauna and micro-organism populations, threats to places of natural significance, accepted scientific process, standards and Codes of Practice.

Topics

- The monitoring process - select a technique
- Prepare for monitoring
- Assess the natural resources by:
  - observation
  - data
  - records
- Assess, review and adjust your monitoring methods

Learning outcomes

At the end of this subject, you will be able to:

1. Select monitoring techniques
   - select appropriate monitoring techniques
   - assess the range of operating conditions hazards and environments
   - test monitoring scheme for reliability, timeline and safety
2. Prepare equipment and resources
   - obtain appropriate certificates, licences and authorisations
   - source equipment required for monitoring
   - transport equipment and personnel to sites in safety
   - install protect and test equipment
3. Monitor biodiversity
   - observations are made according to plan
   - record data to plan and requirements
   - record location and times of observations
   - follow OHS requirements
4. Review data
   • examine records for consistency and accuracy
   • assess records to determine whether the observations and measurements are addressing factors and issues consistent with the monitoring plan
   • adjust monitoring techniques to overcome any deficiency

Resources:
Department of Natural Resources (1999) *Natural Resource Monitoring Guide*, Qld Govt

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This subject fulfils the requirements of the Group C competency AHCLPW405A Monitor Biodiversity.
Core subjects

Develop a plan for managing target pests

This subject covers the process of assessing pest and land management information and developing a plan for the management of the pests. The pests under study for this subject will be plant species—weeds. You will select management options for the target weed species and negotiate strategies with stakeholders in the affected area. You will need to know the relevant legislation and regulations, pest control methods and techniques, social and environmental issues, land use processes, plant identification and weed biology.

Topics

- Define the weed problem in a landscape
- Understand weeds and their growth
- Manage a weed problem
- Chemical and non-chemical control methods
- Develop an action plan for weed management.

Learning outcomes

At the end of this subject, you will be able to:

1. Determine land management and production objectives
   - consult other land users, regional land management bodies, and other relevant stakeholders on regional and local objectives
   - record this information
   - draw up objectives for a land area that are consistent with those above
2. Estimate costs and advantages for the land most affected by the target weeds
   - define the land and production values affected
   - document the costs of control
   - compare the costs of control with the impacts and losses caused by the weeds
   - define the land areas actually and potentially affected
3. Select management options for the target weeds
   - assess and document options for weed control
   - select a management option that is positive in terms of sustainable land use, economic feasibility, integrated pest management principles, environmental acceptability and statutory requirements for pest control
4. Negotiate strategies with relevant stakeholders in the affected area
   - base the strategy on the data collected on abundance and impacts
   - clearly document the pest problem, the objectives and priorities, and the most suitable management options
   - agree on and confirm the strategies by consulting and negotiating with stakeholders
   - publish and distribute the strategies to the relevant stakeholders
Resources:

This subject fulfils the requirements of the Group A competency AHCPMG503A Develop a strategy for the management of target pests
Agricultural stream

Develop a management plan for agricultural land

This subject begins the process of property planning. An essential first step is to work out what your vision and goals are for yourself, your family, your future and your farm. Only when you have been through this intensely personal process will you then be in a position to make sound decisions on what to do with the physical resources of the land.

Topics

- Obtain and prepare an aerial photograph of your property
- Develop a vision for the farm in consultation with other stakeholders.
- Describe the features and management of the farm as a series of overlays for your farm map and aerial photo.

Learning outcomes

At the end of this subject, you will be able to:

1. Define the need for a management plan
   - identify objectives for the area
   - consult with others
2. Undertake preliminary planning
   - identify stakeholders
   - check with any specialists
   - develop a timeline for a management plan
   - identify resources for developing a plan
3. Prepare a site description
   - define and map landscape values of the area
   - identify and map physical features and characteristics
   - research land uses
   - assess the physical condition of the site
   - document biological features of the site
4. Analyse site information and description
   - evaluate information
   - produce documents, reports, plans and maps
   - determine key conservation issues and priorities
   - consider continuing impacts
   - assess land capability
   - conduct a SWOT analysis
   - present material to stakeholders
5. Identify management strategies
   - identify management strategies that address objectives
   - design strategies that reduce negative impacts
   - cost out the strategies and prepare budgets
   - prioritise actions and stage work
   - consult with stakeholders and incorporate their feedback

6. Prepare the management plan
   - document management strategies into a plan
   - consult with stakeholders
   - present the final plan

Resources:
Spearpoint, J (2006) *Striking the Balance: a family’s quest for a sustainable future in agriculture* Tocal College, Paterson

This subject fulfils the requirements of the Group A competency *AHCLPW501A Develop a management plan for a designated area*
Agricultural stream

Manage natural areas on a rural property

This subject builds on the previous subject. It is the next step in the process of identifying, describing, analysing and then managing the natural resources of water, soil, vegetation and habitat and climate. It then takes you into the areas of devising strategies for setting and implementing goals for your farm and prioritising work that needs to be done in managing your natural areas.

Topics

- Develop a management plan for the natural areas of the property
- Develop strategies for implementing an action plan for the property

Learning outcomes

At the end of this subject, you will be able to:

1. Determine the location, size and type of natural area to be managed
   - confirm location, property ownership and map boundaries
   - list native animal and plant species
   - source vegetation structure and conservation value data
   - determine the presence of and threats from pest plants and animals
   - compile evidence of physical impacts on natural area

2. Prepare a management plan
   - design a boundary to protect the area.
   - plan restoration/maintenance strategies
   - address environmental concerns in accordance with relevant national, state, territory and local legislation and/or regulations.
   - reduce or correct physical impacts.
   - liaise with appropriate planning and specialist personnel, and local authorities
   - adopt a strategy to improve the habitat
   - integrate management of natural areas into land use and production systems of property.
   - prepare and present the management plan

3. Implement management strategies
   - develop work schedules incorporating objectives and timelines.
   - follow organisational Occupational Health and Safety (OHS) procedures, practices, policies and precautions
   - work according to management strategies and within statutory requirements.
   - coordinate people, materials and equipment
   - Schedule the works according to personnel, sources of equipment, and seasonal conditions.
   - identify and obtain any permits or licenses required
   - consult with stakeholders as required.
   - communicate with staff, clients, and contractors regularly.
Resources:

This subject fulfils the requirements of the Group A competency *AHCNAR501A Manage natural areas on a rural property.*
Agricultural stream

Plan for revegetation works

This subject details the methods you can use to re-establish trees and shrubs on farms. These activities can add to the productivity, aesthetics and habitat values of your farm. It describes how to plan, prepare, plant and protect sites.

Topics
- The value of trees and shrubs
- Farm planning
- Designing windbreaks and shade areas
- Assessing existing remnants
- Natural regeneration
- Collecting and growing native seed
- Direct seeding
- Planting
- Revegetating streams and waterways
- Weed control
- Protecting revegetated areas

Learning outcomes
At the end of this subject, you will be able to:
1. Carry out preliminary planning activities for revegetation works
   - confirm the needs of the client and the scope of the work
   - identify legal requirements and your responsibilities on the site
   - visit the site to establish the needs of the project
   - identify OHS obligations and any hazards
   - establish the costs, quantity and availability of plants and other materials
2. Prepare a staged plan of works
   - identify resources, tools and equipment required, and cost these
   - plan for environmental impacts of site works
   - prepare a program of works
   - establish timelines for project
   - take into account seasonal factors
   - detail the staged implementation of the plan

Resources:

This subject fulfils the requirements of the Group C competency AHCNAR402A Plan the implementation of revegetation works.
Agricultural stream

Develop sustainable land use strategies and prepare a report

This subject completes the development of planning for the natural resources of your farm. Mapping and descriptions of the natural resources have been completed and management decisions can now be made in the light of the research that has been carried out. This may include plans for fence realignments, watering points, protecting vulnerable areas and conservation earthworks.

Part of the planning process is to monitor and review the plan. You will set up a system that helps you monitor whether your plans are having the desired effect. You also must consider the legislation that applies to your farm.

If you choose to complete the subject ‘Prepare reports’ you will make a verbal (recorded) presentation that covers your farm planning process. The study guide will lead you through these requirements.

Topics
- Develop an action plan for the management of the property
- Monitor and review your plan
- Determine legislation that may affect the management of the property
- Prepare a report on your property

Learning outcomes
At the end of this subject, you will be able to:
1. Assess requirements for improved land use
   - audit the natural resource and identify threats to sustainability.
   - review production and management plans to incorporate sustainable land use principles.
   - assess the water quality and impacts of run off for risk of erosion.
   - assess soil health and fertility
   - assess vegetation and identify required changes
   - plan land protection measures and structures
2. Carry out structural improvements to address threats to sustainability
   - inspect and measure sites for improvement
   - identify OHS hazards and risks. Implement controls.
   - calculate materials required for the construction of the improvement(s)
   - obtain materials, personnel and equipment
   - construct structural works
3. Integrate sustainable land use principles into production
   - realign fences to land classes and soil conservation works.
   - protect and repair contour banks as necessary.
   - construct water carrying structures as necessary.
   - establish tree, other vegetation and shelter belts
   - review soil cultivation and planting practices to prevent erosion and minimise soil run-off.
   - plan grazing strategies for maximum ground cover and avoid damage to banks.

4. Treat areas of land degradation
   - realign fences to land classes and soil conservation works.
   - protect and repair contour banks as necessary.
   - construct water carrying structures as necessary.
   - establish tree, other vegetation and shelter belts.
   - review soil cultivation and planting practices to prevent erosion and minimise soil run-off.

5. Research material
   - identify and describe the topic
   - determine sources information
   - collect and organise information

6. Evaluate information
   - collect information that is relevant
   - clarify information and seek assistance
   - assess information for validity and reliability and is organise into a suitable form
   - draw conclusions from information and evidence

7. Produce a document
   - use language applicable to task and audience
   - document is logically organised
   - document is formatted and presented to a suitable standard
   - conclusions reflect the stated objectives
   - prepare report within the timeframe
   - follow OHS requirements

8. Deliver an oral presentation
   - use language applicable to the task and audience
   - presentation is organised logically and structured suitably
   - support materials are concise and well presented
   - use time efficiently
   - present the material in a specified time

Resources:

This subject fulfils the requirements of the Group A competency AHCNAR506A Develop and implement sustainable land use strategies and the Group B competency AHCWRK503A Prepare reports.
Bush regeneration stream

Develop a management plan for bushland

This subject begins the process of planning for rehabilitation of an area of bushland. An essential first step is to work out what the vision and goals are for the area of land to be rehabilitated or regenerated. Only when you have been through this negotiation process will you then be in a position to make sound decisions on what to do with the physical resources of the land.

To go through the ‘visioning’ process is to work out with all the stakeholders what each person or agency wants the land to look like in the long term.

Topics
- Develop a vision for an area of bushland
- Describe the site
- Analyse the site conditions
- Develop objectives for the site.

Learning outcomes
At the end of this subject, you will be able to:
1. Define the need for a management plan
   - identify objectives for the area
   - consult with others
2. Undertake preliminary planning
   - identify stakeholders
   - check with any specialists
   - develop a timeline for a management plan
   - identify resources for developing a plan
3. Prepare a site description
   - define and map landscape values of the area
   - identify and map physical features and characteristics
   - research land uses
   - assess the physical condition of the site
   - document biological features of the site
4. Analyse site information and description
   - evaluate information
   - produce documents, reports, plans and maps
   - determine key conservation issues and priorities
   - consider continuing impacts
   - assess land capability
   - conduct a SWOT analysis
   - present material to stakeholders
5. Identify management strategies
   - identify management strategies that address objectives
   - design strategies that reduce negative impacts
   - cost out the strategies and prepare budgets
• prioritise actions and stage work
• consult with stakeholders and incorporate their feedback

6. Prepare the management plan
• document management strategies into a plan
• consult with stakeholders
• present the final plan

Resources:
Buchanan, R (2009) *Restoring natural areas in Australia* NSW Industry & Investment, Tocal
*Bush regenerators handbook*

This subject fulfils the requirements of the Group A competency *AHCLPW501A Develop a management plan for a designated area*
Bush regeneration stream

Design a bushland restoration project

This subject builds on the process of planning for managing an area of bushland. You now need to address the threats to both the success of the project and the natural resources you are managing. After this, you will be in a position to draw up a design to manage the natural resources you will be dealing with.

Topics
- Identify threats to the project
- Develop a design to manage the site
- Manage natural resources

Learning outcomes
At the end of this subject, you will be able to:
1. Develop a design brief
   - consult the client to establish the purpose and requirements of the project
   - develop ecological aims and objectives
   - develop a design brief and agree with the client
   - prepare a project budget
   - prepare a base plan of the site
   - review existing data on the site
2. Undertake a site analysis
   - visit and inspect the project site
   - list and map physical features of the site and its condition and threats onto a base plan
   - record soil, topography and other natural features
   - assess legal requirements
   - assess the potential for natural regeneration and identify and record limiting factors
3. Develop a concept design
   - illustrate the location and layout of the proposed design
   - consult and agree with the client on options and approaches
   - present the design concept with supporting written information and justification
4. Produce a final design
   - prepare a detailed plan
   - information is relevant, precise and communicate the project works clearly
   - include notes and specifications with the plan
   - use appropriate construction and engineering principles
   - organise and prepare further design documentation

Resources:
Buchanan, R (2009) Restoring natural areas in Australia NSW Industry & Investment, Tocal
Bush regenerators handbook

This subject fulfils the requirements of the Group A competency AHCNAR503A Design a natural area restoration project.
Bush regeneration stream

Plan bushland revegetation works

This subject continues the plan for managing an area of bushland. At this stage you need to look at the specific program and activities you will undertake, and describe them. In this subject you will be developing a project timeline, the equipment you need for the project and the environmental impact of your activities.

Topics

- Plan a program of works
- Develop a timeline for revegetation projects
- Consider how best to revegetate:
  - natural regeneration
  - collecting and growing native seed
  - direct seeding
  - planting
- Consider the environmental impact of your activities

Learning outcomes

At the end of this subject, you will be able to:

1. Carry out preliminary planning activities for revegetation works
   - confirm the needs of the client and the scope of the work
   - identify legal requirements and your responsibilities on the site
   - visit the site to establish the needs of the project
   - identify OHS obligations and any hazards
   - establish costs, quantity and availability of plants and other materials

2. Prepare a staged plan of works
   - identify resources, tools and equipment required, and cost these
   - plan for environmental impacts of site works
   - prepare a program of works
   - establish timelines for project
   - take into account seasonal factors
   - detail the staged implementation of the plan

Resources:

Buchanan, R (2009) Restoring natural areas in Australia NSW Industry & Investment, Tocal
Bush regenerators handbook

This subject fulfils the requirements of the Group C competency AHCNAR402A Plan the implementation of revegetation works.
Bush regeneration stream

Manage a bushland restoration program and prepare a report

This subject continues the process of developing and implementing a management plan to restore natural bushland. You will complete the process of developing aims and objectives for a natural area. These may include:

- provide habitat for wildlife,
- maintain biodiversity,
- contribute to sustainable land use,
- protect agricultural land
- or even contribute to the aesthetics of the land.

You will need to consider the resources that are needed for a natural resource management plan. In particular, you will use maps and local experts to gain an understanding of local flora and fauna.

In this subject you will prepare a written and verbal report on the management of your project.

You will keep a photographic and written record of your project for a period of six months in which you are involved in the management of a site.

Topics
- Site assessment
- Plan preparation
- Legislation, permits and OHS issues
- Observations and monitoring of works
- Report preparation and presentation

Learning outcomes
At the end of this module, learners will be able to:
1. Inspect and assess site for replacement of vegetation
   - prepare a vegetation assessment report
   - determine site conditions, level of degradation and potential for regeneration
   - assess threats to existing ecosystem, organisms and property from restoration works
   - assess range of operating conditions and hazards
2. Plan natural area restoration program
   - prepare plans and specifications
   - select restoration techniques
   - outline a staged strategy for works
   - protect the project with OHS measures
   - select personnel
   - obtain permits and licences
   - source equipment and materials
2. Monitor natural area restoration works
• make observations
• check that the site is prepared
• check plant materials, machinery and equipment
• complete restoration works
• monitor work and undertake remedial action
• OHS conforms to legislative requirements

3. Review natural area restoration program
• monitor site to ensure compliance with the maintenance program
• assess site to determine whether works are consistent with the plans
• report changes to the techniques used for adoption in future works

4. Research material
• identify and describe the topic
• determine sources information
• collect and organise information

5. Evaluate information
• collect information that is relevant
• clarify information and seek assistance
• assess information for validity and reliability and organise into a suitable form
• draw conclusions from information and evidence

6. Produce a document
• use language applicable to task and audience
• organise the document logically
• format and present the document to a suitable standard
• conclusions reflect the stated objectives
• prepare report within the timeframe
• follow OHS requirements

7. Deliver an oral presentation
• use language applicable to the task and audience
• organise presentation logically and structure it suitably
• support materials are concise and well presented
• use time efficiently
• present the material in a specified time

Resources:
Buchanan, R (2009) Restoring natural areas in Australia NSW Industry & Investment, Tocal
Bush regenerators handbook

This subject fulfils the requirements of the Group A competency AHCNAR504A Manage natural area restoration programs and the Group B competency AHCWRK503A Prepare reports.
Other learning activities

There are no residential schools for this course. There are, however, some short courses held each year at the college that may be useful to completion of an assignment or unit of competency. If you feel you need extra tuition or an introduction to a subject, please check our current offerings of short courses which are advertised on our website (http://www.tocal.nsw.edu.au/courses) and by brochures obtained from the College.

Library resources

The study materials you receive in the mail will cover most of your reading needs. However, at times you may wish to read some of the additional references mentioned in the study modules.

If your local library does not have the books you want, it should be able to get them on loan from other libraries in its network. We suggest you discuss your needs with your local library staff.

If your library has difficulty getting a reference book for you, College staff may be able to suggest a source. Ring the course coordinator—details are on page 4.

The Tocal College library can provide inter-Library loans. Again, your local library can organise this. If you are at the College, feel free to use the library. Check opening times and other details with the College librarian on 02 4939 8830.
Other sources of information

How familiar are you with the state and federal government departments, agencies and authorities offering information and advisory support services to primary producers? Are you making effective use of the services offered? A number of authorities offer an extensive range of information and advisory services and it is in your interest to familiarise yourself with these and to use them when you need help.

Internet Service
A directory of NSW government services for country people is available on www.nsw.gov.au.

Local Land Services (LLS)
From January 2014 Local Land Services (LLS) became operational across New South Wales. LLS brings together a wealth of technical and advisory knowledge from parts of the Department of Primary Industries, Livestock Health and Pest Authorities and Catchment Management Authorities into a new grass roots model for regional service delivery.

LLS are managed by local people on local Boards, working closely with farmers, land managers and communities, to deliver services relevant to their local needs.

LLS will comprise 11 regions; 7-member Local Boards; and 1 Board of Chairs with an independent Chair. The new LLS deliver
- agricultural advice
- plant and animal pest control and biosecurity
- natural resource management
- emergency management.

Each LLS region will develop operational management plans that provide service delivery on a regional basis, reflecting regional priorities.

LLS combines the expertise and knowledge of Livestock Health and Pest Authorities (LHPA), Catchment Management Authorities (CMA) and the Department of Primary Industries (DPI) advisory services.

Farmers and landowners can have a direct relationship with LLS Advisory Officers, who have an area of expertise, like cropping or livestock, but also have a broad range of generalist skills across natural resource management, biosecurity and agricultural advice to bring to the table.

Bureau of Meteorology
02 9296 1555

The Bureau will supply information and advice on climate and weather conditions in particular areas. Historic climatic data is available and specific details of weather forecasting are supplied.

Department of Lands
1300 052 637
http://www.lpi.nsw.gov.au

The Department will answer inquiries and give advice on the availability of appropriate maps for specific purposes. A large range of general and special-purpose maps is available.

NSW Primary Industries (Agriculture)
The Department of Primary Industries (DPI) is a division within NSW Trade & Investment and works to develop and sustain diverse, profitable food and fibre industries, and ensures best practice management of our natural resources.

DPI responsibilities include developing profitable, sustainable and biosecure agriculture, and fisheries; ensuring best management of catchments, natural resources and water; and regulating the state’s food sector.

Divisions are
- Agriculture NSW
- NSW Food Authority
- Biosecurity NSW
- NSW Office of Water
- Catchments & Lands
- Business Services

Agriculture NSW works with agricultural industries, other collaborators and stakeholders to improve the profitability, sustainability and skills of the agriculture and private forestry sectors. Staff deliver research, development, extension, education and industry development programs in the fields of agricultural productivity, food security, climate, water and soil.

Each of the divisions is accessible at http://www.dpi.nsw.gov.au/

Natural Resource Management
Information on aspects of natural resource management can be found on the following websites:

http://www.dwe.nsw.gov.au
http://www.industry.nsw.gov.au
http://www.environment.nsw.gov.au
http://www.lands.nsw.gov.au
http://www.nativevegetation.nsw.gov.au