LESSON 5

ACACIA

Aim
Explain the identification and culture of acacias in a chosen locality.

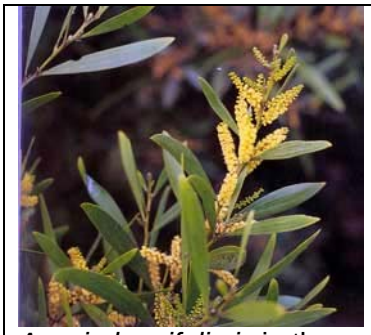
The genus Acacia (The Wattles) is a member of the "Mimosaceae" family. Mimosaceae is one of three families which comprise the legumes. These three families were in the past grouped together into the Leguminosae family. Some references still classify them together as Leguminosae.

Leguminosae used to be divided into three sub-families (ie. Papilionoideae, Caesalpiniodeae and Mimosoideae); the sub-family Papilionoideae was later renamed Faboideae.

More recently, Leguminosae was divided into three new families:

- Mimosaceae,
- Fabaceae an
- Caesalpinaceae.

Some people currently use Papilionaceae as a substitute name for Fabaceae, though this is not botanically correct. Acacias are included in the Mimosaceae family.



*Acacia longifolia i*s in the Mimosaceae family

Cassias are in the Caesalpinaceae family

Kennedya nigricans is in the Fabaceae family

The Acacia, like the Eucalyptus species, is spread throughout Australia many having adapted to suit their environment. 700 species, ranging from low growing plants to large trees are native to Australia and around 500 occur elsewhere in the world (mainly Africa).

At the seedling stage all wattles have bipinnate (double divided or fern like) leaves. In most mature plant these disappear and become replaced by flattened leaf stalks called phyllodes (which look like leaves but actually are not leaves - they are modified stems).
Phyllodes can vary greatly in size and shape, some species having phyllodes which are little more than spines or prickles.

Many, though not all wattles are short lived, rarely lasting more than 15 years. Some however will live a hundred years or more.

Most wattles are very fast growing plants, and ideal to plant to give a quick affect in a new garden, as a windbreak, or for erosion control etc.

The wattle flowers are normally soft balls or cylinders, covered in masses of pollen and yellow or cream in colour. Many people are highly allergic to wattle flowers, and this fact is perhaps not considered enough when they are planted.

There are over 700 Acacia species indigenous to Australia; many have been introduced to countries throughout the world for both economic and ornamental purposes. Acacias leaves are either bipinnate or they have phyllodes (flattened leaf stalk) instead of leaves. They have small, usually fragrant, bee attracting flowers ranging from creamy white to golden yellow either grown in cylindrical spikes or globular heads. The fruit are either round or flattened pea-like pods.

A brief overview of the Acacia genus
Number of species: 1200 (700 native to Australia)
Natural habitat: throughout Australia (though only a few from tropical rainforests)
Flowering time: late autumn to late spring; depending on variety and where it is planted.
Hardiness: most very hardy.
Habit: ground covers, shrubs and trees.
Foliage: varies greatly in shape size and colour
Growth: usually rapid.
Lifespan: often short lived

Acacia baileyana purpurea

CULTURAL NEEDS

- Suited to most soils. Some are sensitive to high phosphorus.
- *A. spectabilis* sensitive to boron deficiency.
- Many sensitive to over wet soils.
- Borers are a major pest
- Caterpillars are a problem on some feather leaved types
- Pruning is risky, often resulting in die back.
- Responds to watering in dry periods

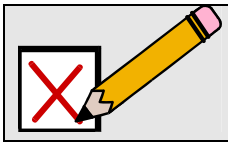
Pests
Wattles are susceptible to several pests and diseases, including wasp galls and borers.

Pruning
Many wattles have a high likelihood of dying if pruned hard. There are exceptions though.
Wattles which usually respond well to hard cutting back include:
A. acinaceae, A. decurrens, A. howittii, A. leptoloba, A. muelleriana, A. podalyriifolia and A. pubescens.

Feeding
Wattles should not be over fed.
The roots of wattles have colonies of *beneficial* bacteria growing on them. These bacteria cause small swellings. They in fact extract nitrogen from the air in the soil and turn it into a form which the wattles use. Because of this situation, it is particularly undesirable to feed with very much nitrogen fertiliser.
Generally only slow release pellet fertiliser is used on wattles (eg. Osmocote or Dynamic Lifter) - unless a particular nutrient deficiency is discovered.

Acacia dealbata

Acacia podylaerifolia



SELF ASSESSMENT
Perform the self assessment test titled ‘test 5.1.’
If you answer incorrectly, review the notes and try the test again.

Acacia species	Height metres	Width metres	Foliage	Flowering
A. acinacea	2.5	1.5	green	Golden balls in spring
A. acuminata	5	2	green	Golden in spikes spring
A. adunca	6	2	green	Very showy late winter
A. alata	2	1	Spined phyllodes	Cream or gold aut-late spring
A. alleniana	5	3	Thread like/pendulous	Golden balls mar to may
A. araneosa	5-8	3-4	green	Sprays yellow throughout year
A. argyrophylla	3-5	3	Silver-grey	Golden-yellow balls in winter
A. aneura	5-10	5	green	Bright yellow spikes
A. armata	2	2	green	Gold balls spring
A. aulacocarpa	.5 - 8	.5 - 8	Blue/green	Mid summer to winter
A. baileyana	5-8	5	blue/green	Yellow, late winter
A. bancroftiorum as known as A. bancroftii	6	4	Bluish 20cm long	Yellow ball sprays late aut. to late winter
A. beckleri	1-3	1-2	Green/grey	Bright yellow late aut. to mid winter
A. bivenosa	1-3	1-3	Green- glaucous	Yellow mid aut. to late spring
A. boormanii	3-5	4	grey/green	Bright yellow, early spring.
A. brachystachya	2 - 6	2 - 6	glaucous	Yellow in axis of phyllodes aut – late winter
A. browiniana	2	2	Tiny bipinnate with oblong leaflets	Golden ball flowers larger then the leaves in spring
A. brownii	1	1	Prickly phyllodes	Golden balls in slim peduncles
A. buxifolia	3	2	Green to glaucous	Golden balls in late winter to spring
A calamifolia	2-4	2-4	Grey-green with bent tip	Pale yellow to golden
A. cardiophylla	1-3	To 3	Pale green	Bright yellow balls in spring
A. cognata	1- 10	1 - 6	Yellow- green to dark green pendulous	Pale lemon/cream in spring
A. colletioides	1.5 or more	3	Prickly with yellow stem projections	Orange or yellow in spring
A. complanata	To 5m	3	Light green phyllodes to 10cm	Deep yellow spring to autumn
A. conferta	2	2	green	Bright yellow autumn to mid spring
A. continua	1-2	To 1	Hooked – spiky blue-green	Large golden balls early spring
A. craspedocarpa	To 4	To 2.5	Grey	Golden spikes mainly in spring
A. cultriformis	3-4	3	blue/green	Golden spring,
A. cyclops	1-6	1-6	Blue/green	Yellow in spring and showy
A. dealbata	5-20	8	blue/green	Bright yellow, late winter to spring
A. deanei	5-10	3-5	green	Pale yellow, all year

A. decora	3-5	4	grey/green	Golden yellow –early spring.
A. denticulosa	1-4	2-4	Dark green	Rod shaped golden in spring
A. dimidiata	To 7	3	Curved to one side.	Terminal sprays of golden flowers in autumn
A. dentifera	2-4	3	Blue/green	Cream/yellow early – mid spring
A. doratoxylon	6-10m	6	Green	Golden spikes in spring
A. drummondii	1.5	1	Green	Golden, late winter – mid spring
A. dunii	To 7m		Long 30cm glaucous to 20cm wide	Golden balls year round
A. elata	10-20	8	Brown/ green	Cream, summer
A. elongata	3	1.5	Pale green	Yellow to gold balls in late winter - spring
A. erinacea	1	1.5	Grey-green	Yellow balls in winter-spring
A. extensa	2 -3	2	Long 20cm phyllodes pale green	Light golden - yellow balls in spring
A.A. falciformis	To 12	3	Grey-green	Cream - yellow globes early summer
A. falcata	To 4	1-2	Grey- green to glaucous sickle shaped	Cream in winter
A. falvescens	4 - 20	1-3	Pale green	Creamy globes late autumn to early winter
A. flexifolia	1 – 1.5	.5-1	Grey- green	Small yellow balls in winter
A. floribunda	4-8	4-6	Green	Yellow, July-Sept
A. genistifolia	.6 - 3	To 2	Green	Large cream balls winter to early spring
A. glaucoptera	To 1.5	To 1.5	Glaucous	Yellow globes in spring
A. gonocarpa	.6 – 3.5	.6 - 2	Green	Pale cream rods summer and again in winter
A. gracilifolia	1-2	1-2	Narrow green	Pale gold in spring
A. guinetii	.5	2.5	Pale green-yellow tinge	Yellow winter – early spring
A. hakeoides	To 4	To 3	Green	Golden in sprays winter and spring
A. hemsleyi	To 7m	3-5	Green	Yellow rods in early spring
A. hispidula	1-2m	1-2	Green	Yellow balls all year
A. howittii	4-8	4	Green	Pale yellow, Spring
A. inophloia	1 – 3.5	1- 2	Greyish-green	Bright yellow rods late winter to mid spring
A. iteaphylla	4-5	4	Blue/green	Pale yellow, Mar-Aug
A. kempeana	2- 5	2-5	Grey to blue/green	Bright golden spikes mid summer to spring
A. kettlewelliae	2 -10	2-5	Silvery - green to glaucous	Light bright gold in late spring
A. lanigera	1	1	Woolly narrow green-bluish	Small balls in spring
A. latescens	3 - 10	3-5	Sickle shaped long leaves to 20cm pale green	Cream balls in autumn

A. leprosa	2-4	To 2	Green	Yellow- orange in spring
A. leptostachya	1-5	1-5	Green to slightly glaucous	Golden rods in winter
A. longifolia	4-10	4-8	Green	Yellow, July-Sept
A. macradenia	3 - 6	3 - 6	Green with reddish new growth	Bright yellow winter and spring
A. mearnsii	10-25	10	Grey/green	Pale yellow, spring
A. melanoxylon	5-30	5-15	Grey/green	Cream, July-Oct
A. merinthophora	4m	To 3m	Grey/green	Creamy yellow rods in the leaf axis late autumn to early spring
A. montana	1 -4	1-4	Bright green and sticky	Golden balls in spring
A. muelleriana	1 - 8	1 - 8	Dark green	Cream balls in spring
A. myrtifolia	.5 - 3	.5 - 3	Dark green	Creamy/yellow
A. notabilis	To 3 m	To 3-4m	Grey/green - glaucous	Golden balls in spring
A. obliquinervia	To 15	2-5m	Grey/green to slightly glaucous	Lemon to golden globes Late winter to early summer
A. oncinocarpa	To 5	To 4	Mid green	Pale yellow rods in autumn
A. papyrocarpa	3-4	2-3	Grey	Yellow in spring
A. paradoxa	2-4	3-4	Prickly	Yellow to bright yellow balls late winter to late spring
A. pendula	5-13	3-13	Glaucous/grey	Yellow balls in spring
A. phasmoides	1-4	To 4	Glaucous/grey	Golden-yellow rods in spring
A. podalyriifolia	4	3	blue	Golden, July-Oct.
A. pravissima	4-8	5-7	Olive green	Yellow, Sept.
A. prominens	5-15	7	Blue/green	Lemon, Sept.
A. pycnantha	4-10	4	Green	Yellow, July-Oct.
A. retinodes	5- 8	5	Grey	Cream-yellow balls in winter-spring
A. rigens	2	3	Grey-green sticky, glossy.	Golden balls in spring
A. rubida	1.5 - 5	1-4	Green to glaucous	Yellow in spring
A. saligna	4-10	5	Green	Yellow, Aug-Nov.
A sophorae - see A. longifolia				
A sclerophylla	To 2	3	Glossy, sticky green	Golden balls borne in the leaf axis in spring
A. siculiformis	To 2 - 3	2-3	Dark green	Cream balls in spring
A. spectabilis	2 -4 up to 6	2-4	Blue-green to glaucous	Golden balls in spring
A. stricta	1- 5	Suckering habit 1-5	Dullish green	Stem clasping balls in spring
A. suaveolens	3	4	Blue/green	Pale, April-Sept
A. terminalis	3	2	Dark green	Cream to yellow balls in autumn - winter
A. torulosa	1.5 - 15	1-10	Yellowish-green	Bright yellow in winter
A. triptera	3	To 7	Bluish-green, sickle shaped	Golden rods in spring
A. ulcifolia	1-2	1-2	Green	Cream, Mar-Sept

A. umbellata	2-6	3 -6	Light green	Golden rods in summer
A. uncinata	3	3	Grey-green	Golden rods in summer
A. verniciflua	1-8	1-5	Green	Cream- yellow balls in spring
A. verticilata	2-7	1-3	Green	Yellow, June-Dec.

SET READING

Read anything you can find on Acacias in any of the other texts you have access to.

ELEMENTS OF A LANDSCAPE DRAWING

The art of drawing a plan, landscape or otherwise, is in itself a skilled profession. A draftsman is a person who does nothing but draw plans. Drafting or drawing a plan is not the same as design. Design is the task of arranging different elements to achieve a desired overall effect. Drafting or drawing is the task of representing that arrangement on paper. The following information is of a general nature and will be of benefit when you are completing your assignment for this lesson.

The landscape design is usually laid out as shown in the drawings on the following pages. A ***margin*** is drawn on the four sides of the plan to enclose the information. A ***title box*** is located in the bottom right hand corner. A typical example of the information in this box is as follows:

FINAL LANDSCAPE DESIGN	
Client:	Mr and Mrs. Brown
Address:	10 High Street, Smithville
Drawn by:	John L. Mason 12/9/89 John L. Mason and Associates P.O.Box 2092, Nerang East, Qld, 4211 Ph: (07) 5530 4855
Scale:	1:100

The landscape drawing should always include a ***north arrow***, a plant list and a legend. The north arrow shows the orientation of the garden and the plan. The ***legend*** explains representations on the drawing (eg. the way trees, walls, rocks and other landscape features are drawn.) (See examples below). The ***plant list*** names all of the plants to be used in the garden, with a number beside each plant listed. These correspond to numbers written beside the plants on the design. Scientific plant names should be used wherever possible to avoid confusion.

Scale

Scale refers to the ratio between the size of the actual site and the representation of it in the drawing. Most plans are drawn on a scale or around 1:100 or 1cm = 1 metre or 1inch: 8 feet. Small site plans such as courtyards, or details of larger plans are often drawn on a scale of 1:50. Concept plans (not too detailed) of large areas can be drawn on scales of 1:200, 1:500 or even higher.

The scale will also be indicated on the drawing, usually in the right or left lower corner.

What to draw on and with

Large sheets of paper are usually required for plans (A5) or larger.

1. If you wish to reproduce plans with a conventional plan printing machine, you might draw on transparent paper (something called rice paper or tracing paper).

2. You might alternatively draw on plain white paper.

3. You may draw on a computer then print off your plans once the design has been perfected. Using computers to draw plans may require expensive software and hardware. At this stage of your education, it is not necessary to use computer- aided design in any shape or form. If you do have the facility, however, you certainly may use it. A major difficulty is that standard computer printers probably will not print a sufficiently large sheet of paper for most landscape plans drawn at an ideal scale. You may find somewhere locally that can print files for you.

Proper drafting pens are expensive but give the best results. Fine felt tipped pens are easier to use and generally adequate. Whatever pen is used it should give a dark (but not too thick) black line. Ideally several nibs (or pens) are used to give different thicknesses of line. A plan drawn on this paper with a black pen is able to be reproduced as many times as copies are required in a dyeline (plan printing) machine. If you do not have ready access to such a machine, most engineering architect or drawing offices will print your plans for you for a small fee.

DESIGN PROCEDURE

The same basic principles and procedures apply whether you are designing a small home garden or a large area of public parkland. The procedure is basically as outlined below:

1. Collect pre-planning information and decide on the principles to be followed

Pre Planning Information should include everything which might have some affect on the function, appearance etc. of the garden or area you are dealing with. You need to know about; existing features, soil type, climate, positions of services (drains etc.), local by laws, preferences of the client or property owner etc.

2. Draw the site (as it exists) to scale

This will be a rough drawing. The final drawing might be traced off this pencil work sketch later.

3. Decide the location of each axis on the plan

An axis is an imaginary line along which a person's view or attention may be drawn. Usually the axis is the line between where a person is standing in the garden and a feature or point of interest towards which his or her attention is directed. An axis in a backyard might be from the back door (where a person enters the garden) to a feature tree in a back corner. In a park, an axis might be from the park gate in a line to fountain, a bed of annuals or a piece of playground equipment.

The designer will design the garden around the several axes that have decided on. Balance is achieved by designing relative to an axis.

4. Decide on the functions to be achieved and designate the broad areas to be incorporated.

This step could occur either before or after deciding on the axes. Areas that might be designated for a home garden are entry area, work area, service area (ie. bins, clothes line, etc), vegetable garden, glasshouse, decorative garden, play area, outdoor living area etc. In parkland, possible inclusions might be: ornamental-passive area, active sporting areas, playground, trail, bush garden, water garden, amphitheatre, etc.

The approximate locations for these areas needs to be determined on the plan in such a way that they fit into the axes and each axis must fit with them. They should also be arranged in such a way that there is no conflict between the different areas (eg. an active play or sport area is best separated from passive, quiet relaxation areas).

5. Start to fill in some of the most basic detail

Concentrate first on locating features at the end of each axis (if one doesn't already exist) and other components that enhance these features. At this point you should also draw in components which are essentials (eg. a fence, washing line or gate).

6. The final stage is to fill in the detail

Draw in all plants and other components in a way that complements what has already been drawn. Review the total design when drawn, make any necessary changes, then draft it onto the tracing paper for a final copy.

LANDSCAPING - USING PLANTS PROPERLY

The way we use plants, as with any section of landscaping, looks best when it looks natural - as if it happened without man's intervention in any major way.

To achieve a "natural" look in a planting requires the designer to first understand how groups of plants grow together in nature.

In the natural habitat plants tend to grow in the following relationships:

1. The "Upper storey trees" can grow to over 100ft tall, though they are often shorter.
2. The "Under storey trees" grow below the branches of the upper storey, in some degree of shading, at least during part of the day.
3. The "Seedling Tree" which is protected in its early life by the mature trees.
4. The "Shrubs" growing below the trees.
5. The ground covers, herbaceous perennials, annuals, mosses and other very low plants.

The second thing to understand about nature is that it keeps changing:

The type of vegetation changes in an area, over a period of time, as the environment is affected by the plants and animals living in it, and other environmental factors such as fire, climate change, landform changes, etc. This process is called a **succession**.

Primary successions are classified as follows:

1. Successions from dry to wet sites.

A typical sequence starts with lichens and mosses, perhaps with herbs; this would then change to forest or grassland.

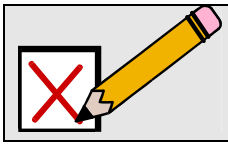
2. Successions with bodies of water (eg. ponds, lakes, rivers etc).

Plants die in the water, embankments collapse, the shape of the water changes, the bottom can become shallower finally shrubs and trees can grow on peat soil which builds up above the surface level of the water body.

3. Successions from rocky sites.

As plant roots and the weather breaks up the rock material, the nature of the soil changes making it more suited to a different range of plants.

Secondary successions occur when something happens causing a quick change in an area. This might be a flood washing away topsoil, fire, logging, clearing sites for development - these and other such things can cause a major change in turn, affecting the plant populations within just a year or so.



SELF ASSESSMENT

Perform the self assessment test titled ‘test 5.2.’

If you answer incorrectly, review the notes and try the test again.

SET TASK

1. Take a walk through your locality, looking for *Acacias* growing there. You might walk in the bush, or perhaps through streets and parks. YOU SHOULD BE ABLE TO FIND SOME ACACIAS. If you can't find any *Acacias*, refer to books or magazines to acquire more information. Perhaps visit a library.
Observe the differences in foliage between different types of Acacias. Observe where they are growing and try to identify the plants you see. Collect a piece of stem and some leaves off at least 3 different Acacias and collect specimens or draw these instead.

2. Find a site where there is a requirement to plant Acacias. (This might be a farm, park, home garden, tree plantation, etc). Develop a list of appropriate Acacias for this area by the following process:
a) Determine the things that will influence what should be planted. You might do this by interviewing property owner. You should consider, soil, climate, finance and manpower available, likely pests, etc.
b) Develop a list of criteria for selecting acacias which may be suitable for the situation (eg. must tolerate strong wind, must resist salinity, etc).
c) Select 25 different plant varieties which fulfil the criteria you established.

ASSIGNMENT
Download and do the assignment called ‘Lesson 5 assignment’.