Topic 3: **FRUITS**

Did you know that,

- The fruit of the *Blueberry Ash* is not a berry.
- The fruit of the *Macadamia* is not a nut.
- The fruit of a *Banksia* is not a cone.
- Some fruits are poisonous.

IDENTIFYING PLANTS BY THEIR FRUITS

Introduction

A fruit is the seed-bearing structure of a plant whether fleshy or dry. These fruits or seed cases and the seeds they contain are the most complex structures plants produce. They are the essential elements which ensure the continuation of the species and it is the only phase in the life of most plants when they can travel. Dispersal is a key element in plant survival and many plants have evolved methods to ensure the seeds are dispersed. For example, through the succulent fruit eaten and dispersed by animals or the exploding pods of legumes, to the winged seeds contained in many seed cases and the burrs which can travel in an animal's fur.

Do not eat fruits that you do not know to be safe to eat.

We are going to look at the ways plants package their seeds to ensure survival and this will help in the identification and classification of native plants.

Following are some useful terms which will be used in this talk.

Glossary

Carpel: The female part of a flower consisting of the stigma, style and ovary

Cauliflory: The production of flowers or fruits on well-developed trunks and branches

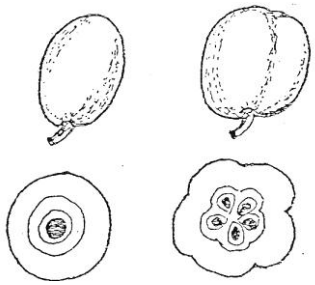
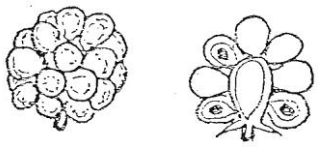
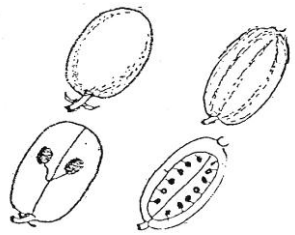
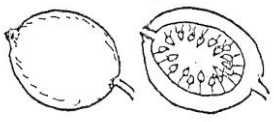
Dehiscent: Opening on maturity to release the seed

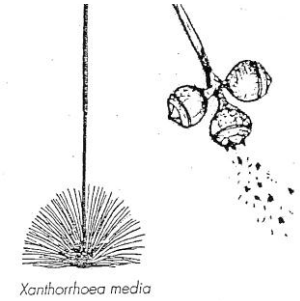
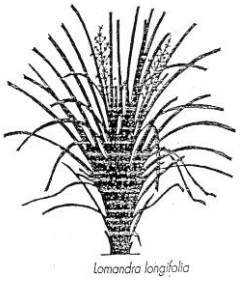
Indehiscent: Not opening on maturity to release seed

Dioecious: With male and female flowers on separate plants

Monoecious: Having male and female flowers on the same plant

Native Fruits and other Seed Cases

Fruit type/ Seed Case	Description		Native Plant example
Drupe	An indehiscent (not opening) succulent fruit derived from one or more carpels in which the pericarp consists of three layers: the seed(s) enclosed in the inner stony layer – ENDOCARP, a soft fleshy layer MESOCARP and an outer skin EPICARP.		*Davidsonia jerseyana,* (Davidson's Plum), *Acronychia acidula,* (Lemon Aspen), *Elaeocarpus reticulatus,* (Blueberry Ash), *Persoonia pinifolia,* (Geebung).
Aggregate drupe	A cluster of individual drupelets derived from a single flower in which the carpels are free from each other. Although commonly referred to as berries eg. raspberry, blackberry, these are not berries.		*Rubus rosifolius,* (Native Raspberry).
Berry	A fleshy indehiscent fruit with one or more seeds embedded in the fleshy tissue with no endocarp. May be formed from either a superior or inferior ovary eg. ovary above floral parts or ovary below floral parts. Berries change colour and become soft as they ripen.		*Eupomatia laurina,* (Bolwarra), *Cordyline rubra, Dianella caerulea, Syzygium australe.*
Follicle	A dry fruit derived from a single carpel and opening along one side. In *Banksias* the fruits are actually a number of individual follicles joined together on a woody cone. Some fruit have winged seeds eg. *Hakea*. In some *Banksia* species follicles open after bush fires eg. *B. serrata, B. ericifolia.*		*Stenocarpus sinuatus,* (Firewheel Tree), *Grevillea hilliana, Hakea gibbosa, Banksia serrata, Banksia ericifolia, Macadamia tetraphylla.*
Syconium	The multiple fruit formed in figs where the minute flowers and fruits are actually inside the swollen inflorescence stem. The flowers are pollinated by wasps specific to each species. Some fig species produce fruit on the trunk and major branches. This process is called cauliflory eg. *Ficus leptoclada*. The mature fruit of the fig are eaten by birds and animals and dispersed.		*Ficus leptoclada,* (Cauliflory Fig), *Ficus coronata,* (Sandpaper Fig).

Grain or Caryopsis	Grains are single seeded fruits produced by grasses. Flowers of these species are insignificant and usually in large flower heads that occur on tall stems. In most cases each flower head will develop to contain many individual grains. Grains become dry, change in colour from green to brown and release easily from the plant when mature. In *Themeda australis* each grain has a bristle-like attachment called an awn. The awn acts to 'screw' the grain into the ground.		*Themeda australis,* (Kangaroo Grass).
Woody capsule	A dry dehiscent fruit that usually contains several or numerous seeds. Capsules take from 4 to 24 months to reach maturity after flowering. They become dry, hard and woody when the seed is mature. Seeds are released from valves on the tops of capsules. The seed is usually small and various shades of brown or black.		*Eucalyptus spp., Xanthorrhoea media, Callistemon viminalis.*
Non-woody capsule	Many Australian native plants contain seed in non-woody capsules. These capsules range from papery and brittle to leathery or slightly woody. Non-woody capsules usually open to release seed soon after maturity. Depending on the species each capsule contains 2-10 seeds ranging from dust-like to 2-3mm in diameter.		*Lomandra longifolia, Pittosporum revolutum, Auranticarpa rhombifolium, Toona ciliata.*
Cone	Specialized scale-like structures bearing the seeds arranged tightly on a central axis. Plants with cones do not produce flowers, instead the seeds develop on the scale-like structures that eventually form the cones.		*Araucaria bidwillii,* (Bunya Pine), *Macrozamia communis,* (Burrawang).
Pod or legume	A long dry dehiscent fruit formed from one carpel and opening down two sides. Depending on the species pods range from papery to leathery at maturity. As pods mature they change colour from green to various shades of brown or black and become dry and brittle. Pods split down both sides to release seed upon maturity. Pods of some species open explosively during hot weather.		*Castanospermum australe*, (Black Bean), *Acacia spp*.

A selection of Species found at Ku-ring-gai Wildflower Garden

SCIENTIFIC NAME	COMMON NAME	SEED CASE TYPE
Elaeocarpus reticulatus	Blueberry Ash	Drupe
Persoonia levis	Broad-leaved Geebung	Drupe
Persoonia pinifolia	Pine-leaved Geebung	Drupe
Hicksbeachia pinnatifolia	Red Bopple Nut	Drupe
Davidsonia jerseyana	Davidson's Plum	Drupe
Trochocarpa laurina	Tree Heath	Drupe
Dianella caerulea	Flax Lily	Berry
Eupomatia laurina	Bolwarra	Berry
Syzygium australe	Brush Cherry	Berry
Stenocarpus sinuatus	Firewheel Tree	Follicle
Buckinghamia celsissima	Ivory Curl Tree	Follicle
Macadamia tetraphylla	Macadamia Nut	Follicle
Banksia serrata	Saw-tooth Banksia	Follicle
Banksia ericifolia	Heath Banksia	Follicle
Telopea speciosissima	Waratah	Follicle
Hakea gibbosa	Needle Bush	Follicle
Grevillea sericea	Pink Spider Flower	Follicle
Grevillea linearifolia	Fine-leaved Grevillea	Follicle
Ficus coronata	Sandpaper Fig	Syconium
Ficus rubiginosa	Port Jackson Fig	Syconium
Themeda australis	Kangaroo Grass	Grain or Caryopsis
Xanthorrhoea sp	Grass Tree	Woody capsule
Eucalyptus haemastoma	Scribbly Gum	Woody capsule
Callistemon viminalis	Weeping Bottle Brush	Woody capsule
Lomandra longifolia	Mat Rush	Non-Woody capsule
Auranticarpa rhombifolia	Holly-leaved Pittosporum	Non-Woody capsule
Pittosporum revolutum	Rough fruit Pittosporum	Non-Woody capsule
Toona ciliata	Red Cedar	Non-Woody capsule
Araucaria bidwillii	Bunya Pine	Cone
Araucaria cunninghamii	Hoop Pine	Cone
Macrozamia communis	Burrawang	Cone
Allocasuarina distyla	Scrub or Black She-oak	Samara
Casuarina glauca	Swamp Oak	Samara
Castanospermum australe	Black Bean	Pod or Legume
Indigofera australis	Native Indigo	Pod or Legume
Acacia sp	Wattle	Pod or Legume
Morinda jasminoides	Sweet Morinda	Syncarp
Gahnia sp	Saw Sedge	Nut

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