Cooleman Ridge

Guide for a Tree Survey

by

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### The tree survey on Cooleman Ridge

*An instruction booklet drafted by Tony Fearnside, Pauline Lyngå and Gösta Lyngå*

It is planned to make a survey of all trees on Cooleman Ridge with diameter larger than 15 cm. Positioning is to be carried out with a GPS (Global Positioning System) and characteristics of each tree is to be recorded on a special form (page 4, below) ; data are then entered into a data base (Filemaker Pro 2.1). Later repetitions of the survey will allow monitoring of changes of the tree coverage. Hopefully we can find caretakers willing to take responsibility for the survey in each of eight localities (see page 3). Various information:

The CNP grid squares can be found from the GPS data according to these tables:

|  |  |
| --- | --- |
| Grid square letter | easting |
|  | 06-83350 |
| B |  |
|  | 06-83600 |
| C |  |
|  | 06-83850 |
| D |  |
|  | 06-84100 |
| E |  |
|  | 06-84350 |
| F |  |
|  | 06-84600 |
| G |  |
|  | 06-84850 |
| H |  |
|  | 06-85100 |
| I |  |
|  | 06-85350 |
| J |  |
|  | 06-85600 |
| K |  |
|  | 06-85850 |
| L |  |
|  | 06-86100 |
| M |  |
|  | 06-86350 |

|  |  |
| --- | --- |
| Grid square number | northing |
|  | 60-86300 |
| 0 |  |
|  | 60-86050 |
| 1 |  |
|  | 60-85800 |
| 2 |  |
|  | 60-85550 |
| 3 |  |
|  | 60-85300 |
| 4 |  |
|  | 60-85050 |
| 5 |  |
|  | 60-84800 |
| 6 |  |
|  | 60-84550 |
| 7 |  |
|  | 60-84300 |
| 8 |  |
|  | 60-84050 |
| 9 |  |
|  | 60-83800 |
| 10 |  |
|  | 60-83550 |

1. The GPS data are quite useful when trees are scattered but in a grove with distances between trees of less than 10 meters it is better to measure the distances between the trees (in northerly and easterly directions) by step counting and to use the GPS data for the middle of the grove and adding individual distances of the trees.
2. To judge the height of the tree and the size of the crown, refer to page 5; to classify the species, refer to page 6.
3. Photos of the trees can be taken from any direction, but it should be noted in what direction the camera was pointing when the picture was taken. It is of advantage to have several trees on the same picture and a sketch made with tree numbers marked.
4. The temporary numbers on the trees should be put at about eye level on the eastern side of the trunk. Each locality group does its own numbering.
5. If, because of branching, the trunk cannot be measured at 1.3m height, then measure it at another height and note this.
6. It is a very good idea to use a pair of binoculars when looking for identifying features, mistletoes, insect defoliation or die back.
7. Epicormics are branches that have grown after some damage to the tree; they are recognised on the abrupt joining to the trunk or main branch.

### Localities for the Tree Survey

Names of localities refer to access streets; squares B1, C1 etc. are each 250 x 250 m and are defined by the CNP map; only the parts inside the nature park are relevant. For description of areas see separate document with map.

If there are ambiguities, contact the neighbouring caretaker in the first place to agree on border lines.

Kathner Street

C1 W of fire trail

B1

B2

C2 W of fence

Chauvel Circle

C1 E of fire trail

D1

C2 E of fence

C3

D2 W of track from Monkman Street up to ridge track

D3 W of cow track down to dam

D4 W of dam

Titheradge Place

D2 E of track from Monkman Street up to ridge track

D3 E of cow track down to dam

D4 E of dam

E2, F2

E3, E4 N of nature trail

F3 N of track

Niblo Place

E3, E4 S of nature trail

E5

F3 S of track

F4

F5, G5 N of track from Darrell Place (including reservoir)

Darrell Place

F5, G5 S of track from Darrell Place (excluding reservoir)

F6, G6, G7, G8, H5, H6

H7, H8 W of creek excluding reservoir

I6, I7 W of track from Guiness Place

Guiness Place

H7, H8 E of creek including reservoir

I4, I5

I6 E of track

J6

I7, I8, J7 NW of power line

Lincoln Place

I7, I8, J7 SE of power line

H8, H9

I9

J8 N of track to Arawang

J8, J9 W of southerly track

K7

K8 N of track

L7, L8 NW of track to Arawang

Namatjira Drive

J8, J9 E of track

K8 south of track

K9, K10

L7, L8 SE of track to Arawang

L9, L10

M7, M8, M9

**COOLEMAN RIDGE PARK CARE GROUP - TREE SURVEY - notes**

**ID ........./............**

**1. LOCATION** *eg, C1/21*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **GENERAL LOCALITY** | | | grid square | | | | | grid reference *(AMG)* | | | | | | | | | | |
| *eg, Kathner St* | | | *from our map* | | | | | easting  **06** - | | | | | | northing  **60** - | | | | |
| **SLOPE POSITION ()** | | | ridge | | upper | | | | middle | | | | lower | | | | bottom | |
| **NEARBY VEGETAT-ION** *within 20 m* | | | seedlings | | | saplings | | | | | weeds: woody  herbaceous | | | | | grass | | |
| **ASPECT ()** | N | NE | | E | | | SE | | | S | | SW | | | W | | | NW |

**2. THE TREE** *(only measure trees above about 15 cm diameter/50 cm girth)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **circumference at 1.3 m** (to nearest 0.05 m)  *(give measurement height if not 1.3 m)* | | | | | **approx**  **height (m)** *(to nearest metre)* | | | |
| **SPECIES**  **(TYPE) ()** | exotic *(ie, exotic to the Ridge!)* | | eucalypt | | acacia | | other native | |
| **BARK()** | gum | | box | | stringy | | other | |
| **SPECIES**  **(NAME)** | *(can be botanical or common name; see key)* | | | | | | | |
| **TRUNK()** | single | | fork above 1.3m | | fork below 1.3m | | multi stems | |
| **EPICORMICS()** | none | | some | | medium | | a lot | |
| **HEALTH()** | healthy | | some dead branches | | many dead branches | | dead | |
| **CROWN SIZE()**  *see diagram* | large | | medium | | small | | narrow | |
| **CROWN()**  **DENSITY** | thick & vigorous | | moderate | | sparse | | mostly dead | |
| **MISTLETOE()** | absent | | one plant | | 2 or 3 plants | | >3 plants | |
| **INSECT DEFOLIATION()**  *refers to whole tree* | none visible | | some | | widespread | | complete | |
| **HABITAT VALUE()** | no visible hollows | one or two hollows | | several hollows | | nests/roosts | | hollow trunk |
| **OTHER ()** | some die back | | advanced die back | | scar(s): fire  other | | claw marks | |
|  | buds | | fruit | | galls/fungi | | other (see comments) | |

**3. MEASUREMENT DETAILS**

|  |  |  |
| --- | --- | --- |
| name(s) | date | comments |

please see further comments and/or sketch map on back (YES/NO); photograph (YES/NO)

### The Height of a Tree

1. Three ways of estimating the height of a tree:

* hold a short stick corresponding to 2 metres on the outstretched arm towards the tree; then move it upwards and count the number of times it takes until the top is reached.
* hold a stick at arms length with the same length as the arm, so that a 45 degree angle is obtained. If the stick corresponds to the height of the tree, the distance to the tree will give this value.
* hold a stick corrsponding to the height of the tree and turn it to horisontal position; you can then measure the same distance on the ground.

### Crown Size Estimates

A LARGE CROWN IS WIDER THAN THE TREE IS TALL

A MEDIUM CROWN IS TALLER THAN WIDE BUT WELL FORMED

A SMALL CROWN IS SMALLER THAN WOULD BE EXPECTED OR ON A YOUNG TREE

A NARROW CROWN IS USUALLY ASSOCIATED WITH POOR GROWTH IN THE PAST

### COOLEMAN RIDGE PARK CARE GROUP - TREE SURVEY - notes

A. EUCALYPTS: there are between 600 and 1,000 species of eucalypts, nearly all of which are indigenous to Australia. This large number creates problems in identification, but fortunately there are only about nine species of eucalypts which occur naturally on the ridge, and about four others that have been planted.

Perhaps the best way is to start with the bark - the trouble with this is that bark can be variable, especially in red gums and red and yellow boxes. The leaves (juvenile and mature) are generally our next diagnostic followed by the buds or fruits. Sometimes the leaves are a different colour on the “back” to the “front” (discolorous) if the two sides are the same colour, the leaves are “concolorous”.

1. ROUGH BARKED SPECIES: the bark is rough and persists to the small branches.

BROAD LEAVED PEPPERMINT (*Eucalyptus dives*) the grey bark has a lattice appearance and is somewhat flaky, shed from smaller branches, leaves have a distinct peppermint smell, juvenile leaves are grey-blue to pale green in colour and are opposite each other and do not have stalks (“sessile”) adult leaves are concolorous up to 15 cm long and 3.3 cm wide. UNCOMMON.

RED STRINGYBARK (*E. macrorhyncha*) the bark is stringy and fibrous, quite soft to the touch, brown with reddish cracks (red inside), bark persists on larger branches and trunk. The name means “big beak” and refers to the elongated cover on the “lid” (operculum) on the buds. The juvenile leaves are alternate, or nearly opposite, except for the first few pairs which are opposite each other, adult leaves are concolorous and up to 15 x 2.5 cm. FAIRLY COMMON, probably more so on south and east facing slopes.

ARGYLE APPLE *(E. cinerea)* has been planted near the Ridge (eg, near Kathner St, Monkman St) and has bark that is generally similar to red stringybark but the juvenile leaves are usually very persistent and are oval shaped, glaucous blue-green in colour. planted, EXOTIC TO RIDGE.

APPLE BOX (*E. bridgesiana*) has fissured grey-brown bark, yellowish inside, of the box type. Where bark has flaked off there can be whitish patches. The juvenile leaves are glaucous (dull grey-green or blue green and covered with “bloom” like grapes) and have short or no stalks and are opposite or nearly opposite. Adult leaves are concolorous, dark green and up to 20 x 2.5 cm in size. FAIRLY COMMON.

MEALY BUNDY (*E. nortonii*) has grey or grey-brown bark which is coarse and thick with deep fissures on the trunk. A tree of spreading habit, especially when growing in the open, and does not usually have a well developed trunk. Juvenile leaves are almost as broad as long, dull grey-green and glaucous, adult leaves are dull and may have a glaucous surface, ie, not shiny. Buds and fruits are glaucous. COMMON.

RED IRON BARK (*E. sideroxylon*) has very tough dark brown bark with red fissures and quite broad grey green leaves. The variety “rosea” has pink flowers. Often planted nearby, eg, Namatjira Drive. EXOTIC TO RIDGE.

2. GUM BARKED SPECIES: the old bark flakes off regularly from all parts of the tree and leaves a smooth new bark which is usually white or grey but can also be a pale colour (eg, pink or yellow). The bark usually is not persistent on the trunk and does not reach up to the branches.

SCRIBBLY GUM (*E. rossii*) often grows in association with red stringybark and brittle gum. The bark usually has scribbly marks on the white bark of the trunk, which becomes pale grey (just after bark shed the bark may be yellowish or pink) and often has “pressure lines” (stress wrinkles) where branches leave the stem. Juvenile leaves are opposite and grey-green; adult leaves are alternate, grey-green 7-15 cm long and 0.8 - 1.3 cm wide. The buds have a hemispherical top and there are 5 - 10 in a flowering head. COMMON.

BRITTLE GUM (*E. mannifera*) is very similar to Scribbly Gum, does not usually have “scribbles” on the bark nor “pressure lines” (stress wrinkles) where branches leave the stem. The bark is usually powdery. Common around Canberra, including street trees eg, Namatjira Drive, Kathner St, Monkman St. May occur on the ridge but considered EXOTIC TO THE RIDGE.

BLAKELY’S RED GUM (*E. blakelyi*) grows into a very tall tree. The bark is mottled, blue-grey and is smooth on all parts of the tree. The bark is shed in large irregular plates, leaving white or grey patches which may also be bluish or pinkish. Juvenile leaves are alternate and oval or roundish in shape, and the adult leaves are alternate, lance-shaped and green. The buds have pointed “hoods”, occur in clusters of 4 - 8, and the fruits are 6 - 7 cm long and almost the same in diameter. FAIRLY COMMON but not on thin stony soils.

SNOW GUM (*E. pauciflora*) is not common on the ridge, it is usually a short tree with a crooked bole. The bark is white or light grey and is smooth throughout, and often has “scribbles”. The juvenile leaves are alternate and oval shaped, the adult leaves are larger than most others on the Ridge, green (or blue-green), thick and glossy, lance shaped and bent from the stalk, they are 8 -15 cm long and 1.5 to 3.5 cm wide and have sub-parallel veins The flowers occur in groups of 7 - 15, with short or no stalks. The fruits are 8 - 10 mm have a prominent rim, short stalks (or no stalks) and are oval or cup-like in shape. UNCOMMON.

BLUE GUMS (*E. bicostata* and *E. globulus*) have been planted on the ridge in some places. A vigorous tree with gum bark (more or less persistent on the trunk but not on the branches) that is often shed in strips. The blue-green juvenile leaves are opposite on the twigs, discolorous, glaucous. Large dark green concolorous, thick adult leaves (up to 25 x 3 cm). Fruits are large, squarish and blue green. Planted, eg, Namatjira Drive EXOTIC TO RIDGE.

3. BOX BARKED SPECIES: the bark is usually persistent on the trunk but not on the main branches, the bark can vary in texture from thick and hard quite like an iron bark to something more like a gum bark. Bark is thicker and tougher on older trees

YELLOW BOX (*E. melliodora*) the brown bark with yellowish tinges, which is very variable, is rough and persistent on the trunk and is in varying amounts on the branches, and becomes darker, harder and coarser with age. Juvenile leaves are alternate and have stalks green or grey-green; adult leaves are lance shaped to long and narrow in shape, green or grey green and not thick. Grows into a tall, spreading tree. COMMON.

RED BOX (*E. polyanthemos*) bark is very variable, and is shed in irregular short strips, leaving a grey coloured underbark. Juvenile leaves are round and opposite each other on the branches at first, intermediate leaves are oval shaped. Adult leaves are fairly broad and up to 9 x 3 cm in size.; colour is slate grey-green, concolorous. COMMON and often regenerating well on the ridge.

B. OTHER INDIGENOUS TREE SPECIES: include seven wattle species, kurrajong, drooping she oak (“casuarina”) and native cherry.

Acacias can be divided into two groups, those that develop “phyllodes” which are leaf-like appendages which function as leaves and those which develop the typical “bipinnate” foliage (leaves with a lot of small leaflets) in addition to or without having phyllodes. All acacias have bi-pinnate leaves to begin with, even if few and short lived. Acacia seed is often stimulated to grow after a fire, and acacias are more common in the patches burnt by fire on Mt Arawang and near Cooleman Trig.

1. NON-ACACIAS

KURRAJONG (*Brachychiton populneus*) is often a slow growing tree with a typical pyramidal shape. Its dark green leaves are shaped a little like poplar leaves. The juvenile foliage is usually three-lobed. Because it has such a distinctive shape, it is often planted as an ornamental tree (eg, Limestone Avenue). Trees in the genus *Brachychiton* often have swollen lower trunks (“bottle trees”) - the swelling is not so pronounced in kurrajongs, at least until they are old. SCATTERED AND NOT COMMON.

DROOPING SHE OAK (*Allocasuarina verticellata*, formerly *Casuarina stricta*) typically grows on rocky sites, has long green needles which are really branchlets with small tooth-like appendages which are reduced leaves (“leaf-teeth”). As it name suggests, the green branchlets are long and droopy, they are coarser than river she oak (which is widely planted in Canberra and occurs naturally along rivers in the ACT). It is a pioneer species or early coloniser after disturbance such as clearing or fire. LOCALLY COMMON.

NATIVE CHERRY (*Exocarpus* *cupressiformis*) has soft green branchlets, which are usually pendulous. It is usually a large shrub/small tree which looks a bit like a cypress tree. It has buds/flowers/fruits in short spikes at the ends of the branchlets. The edible fruit base (pedicel) is fleshy and yellow or red in colour. NOT COMMON. (NB this is partly parasitic on other plants/trees).

2. ACACIAS WHICH HAVE PHYLLODES AS THEIR DOMINANT FOLIAGE

HICKORY ( *Acacia implexa*) is closely related to blackwood, but the seed does not have a folded stalk (funicle) which encircles the seed. The phyllodes are similar to those of blackwood but the nerves are only occasionally interconnected. Pods are curved. Pale yellow flowers in late summer. LOCALLY COMMON.

BLACKWOOD (*A. melanoxylon*) has hard fissured dark grey bark, phyllodes are 7-12 cm long, 1-1.5 cm wide, with 3-7 longitudinal “nerves” or nerves which are interconnected with a network of small veins. Flowers in October, with pale yellow flowers. Blackwood can become a tall tree in moist places but on the ridge it is likely to be only a small tree or shrub. The pod is curved or coiled and the seed is encircled by a red stalk (“funicle”). LOCALLY COMMON.

WEDGE LEAF WATTLE (*A. pravissima*) has small dark green wedge shaped phyllodes which are asymmetric and 7-10 mm long and almost as wide. Pods are straight and flat and 3-5 cm long. The branchlets and phyllodes are glabrous. Pendulous branches and light golden yellow flowers. EXOTIC TO RIDGE.

WHITE SALLY (*A. floribunda*) Erect or spreading shrub; pale yellow to white flowers, September; pods straight to strongly curved; host to the mistletoe Muellerina eucalyptoides. EXOTIC TO RIDGE

3. ACACIAS WITH BI-PINNATE LEAVES AS THEIR DOMINANT FOLIAGE

COOTAMUNDRA WATTLE (*A. baileyana*) has silvery/blue-green pinnate foliage, widely planted in gardens. Flowers August-September Occurs naturally in the Cootamundra region but is EXOTIC TO THE RIDGE.

GREEN WATTLE (*A. decurrens*) is also known as black wattle closely related to *A. mearnsii* but has sharply angled branches and flowers early (September to October usually). A short lived species which is susceptible to insect attack. Smooth bark. Branchlets are bright green, with angular wings. Has bi-pinnate green leaves with 10-15 pairs of “pinnae” per leaf, pinnules 8-10 mm long. (NB, can form a hybrid with *A. baileyana*.) COMMON.

BLACK WATTLE (*A. mearnsii*) is also known as green wattle, closely related to *A. decurrens,* butbranchlets are dull green and hairy (“pubescent”) without angular wings. The bi-pinnate leaves are green and have 8-16 pairs of pinnae which are mostly 1.5 to 2.5 mm long. Flowers later than *A. decurrens* (November). COMMON.

**COOLEMAN RIDGE PARK CARE GROUP:** KEY TO EUCALYPTS ON THE RIDGE

tony fearnside july 1997

|  |  |
| --- | --- |
| **1. bark rough and persistent to small branches** |  |
| leaves peppermint scented  grey bark with lattice pattern | *E. dives*  broad leaved peppermint |
|  |  |
| stringy & fibrous bark, red-brown inside  green leaves | *E. macrorhyncha*  red stringybark |
|  |  |
| red brown stringy & fibrous bark  juvenile/intermediate leaves only, glaucous | *E. cinerea*  argyle apple (*exotic to ridge)* |
|  |  |
| fissured grey-brown bark, yellowish inside, glaucous juvenile leaves, shiny grey green adult leaves | *E. bridgesiana*  apple box |
|  |  |
| grey bark, coarse and thick with deep fissures  trunk not well developed, spreading branches | *E. nortonii*  mealy bundy |
|  |  |
| tough dark brown bark with red fissures | *E. sideroxylon* |
| quite broad grey green leaves | red ironbark (*exotic to ridge*) |
| **2. bark smooth & peeling off, at least on main branches** | |
| scribbles on whitish bark, thin leaves, stress wrinkles under branches on trunk | *E. rossii*  scribbly gum |
|  |  |
| scribbles on bark; thick leaves with sub-parallel veins trunk not well developed, not a tall tree  stress wrinkles under branches on trunk | *E. pauciflora*  snow gum |
|  |  |
| bark peels off in ribbons, long thick leaves  glaucous juveniles and fruits, vigorous tree | *E. bicostata* or *E. globulus*  blue gum (*exotic to ridge)* |
| **3. bark smooth & peeling off, no scribbles or stress swellings** | |
| powdery whitish bark, no scribbles  no stress wrinkles | *E. mannifera*  brittle gum (*exotic to ridge??*) |
| round juvenile leaves, grey green with stalks  green adult leaves, can be a very large tree  bark often grey,usually not persistent on trunk, large blotches where bark has peeled off | *E. blakelyi*  red gum |
|  |  |
| bark usually persistent on trunk, can be very thick  yellow-brown patches/colour on brown bark,  lance-shaped leaves | *E. melliodora*  yellow box |
|  |  |
| grey green & oval intermediate & juvenile leaves  bark very variable, persistent on trunk | *E. polyanthemos*  red box |