

Blackwood Forest

Growing and Utilising a variety of alternative and traditional species with an emphasis on Blackwoods and machinery

John and Robyn Fairweather

Blackwood Forest is a 20 hectare woodlot established on a site with heavy soil and rainfall of 700mm per year. The forestry objectives have changed over time. The original plan was to grow a variety of alternative species in an agro-forestry design. The original 1988 planting included a variety of ground-durable eucalypts, blackwood with eucalypt 'nurse' crop, and some other hardwood species. A wide variety of nut trees were planted on one hectare.

From 1993, the forestry objectives were revised so that some eucalypt nurse trees were kept as a final crop, agro-forestry was abandoned and pines were planted between the agro-forestry rows. In addition, poplars were used in wet areas, amenity trees were planted near the house, and the variety of nuts was reduced to the only survivor – hazelnuts. The slow growth of the blackwood trees prompted installation of an irrigation system in an attempt to encourage growth. By 2000, the plan to utilise timber trees for sawn wood was developed by making a band saw mill in order to learn how to mill and dry timber.

From 2004, the objectives have been to manage the trees mainly as timberbelts, that is, species in (mostly) single rows at higher stocking rates than usual to allow for production thinning. Machinery has been purchased to extract and handle logs and this now allows for moving towards continuous cover forestry and selectively harvesting small volumes of trees for milling and processing. Recent developments include a dedicated timber drying shed, and there are plans to build a solar kiln. In the meantime, we enjoy growing the trees and encouraging the bird life.

The field trip will include a meandering walk among the forest, a sawmill demonstration, the drying shed, and examples of sawn wood.

Property description:

20 hectares. Wakanui Silt Loam (heavy soil). Rainfall, 693 mm pa.

Original Objectives (1988):

1. Establish and grow Tasmanian Blackwoods in wide-spaced rows (approx. 20m) and graze livestock (planted 1988, trees now 19+ years old).
2. Use a variety of eucalypts (*nitens*, *regnans*, *camaldulensis*, *obliqua* (frosted) and *saligna* (frosted)) as a nurse crop for the blackwoods to encourage good form (planted 1987, trees now 20+ years old).
3. Grow small numbers of other ground durable eucalyptus species (*globoidea* (*removed*), *agglomerata* (*frosted*), *bosistoana*, *sideroxylon*, *cladocalyx* (*frosted*), *melliodora* and *muellerana* (*removed*)), *ovata*, also as nurse crop (1987)).
4. Grow small numbers of other hardwood species (Ash (*OK but removed*), Elm (*OK but removed*), Robinia (*struggling*), Chestnut (*struggling*), English Walnut (*struggling*), Black Walnut (*failed*), Australian Red Cedar (*frosted*)).
5. Grow a wide variety of nut trees on 1 hectare paddock behind house (walnut, hazelnut, chestnut, pecan, almond, pine nut). Hazelnut the best survivor on heavy soil.



Revised Objectives (1993-2000):

1. Use some of the nurse eucalypts as a final crop and remove blackwoods in those rows.
2. Establish and grow pines (GF 19) between the hardwood rows (1993, trees now 14+ years old), and macrocarpa in a small paddock (1993).
3. Establish and grow two rows of macrocarpas where the rows of pines were wider than 6 metres (1995).
4. Use timber poplars (Veronese, Kawa) in wet areas where all other trees failed (1994 onwards).
5. Establish amenity trees near the house for birds (ongoing).
6. Irrigate blackwoods (T Tape) and use backwash water to irrigate hazelnuts (1 ha behind house), started in 1995/96.
7. Remove the variety of nuts and just use hazelnuts.
8. Build band sawmill and learn about sawing and seasoning hardwood timber.

Revised Objectives (2004-2006):

1. Confirmed that many rows are (irrigated) timberbelts. Slightly higher stocking rates than a pure woodlot. Plan to production thin all species. Where pine stocking rate and size is competing with blackwoods, try production thinning by testing the market for ground treated, larger dimension timber (too much hard work), or for other uses (export K grades (\$46/T), posts (\$55/T), chip (\$33/T).
2. Improved irrigation by using new bore and apply water via sprinklers (in 2004).
3. Develop log handling capacity (forklift and forwarder) to help add value to thinnings.
4. Support birds (mainly pheasants) by feeding, breeding and releasing.

Management of Blackwoods:

1. Irrigation and weed control since 1995/96. Early trials showed good response to water & super.
2. Ripping between Blackwood row and eucalyptus row in summer 1996 to cut euc. roots.
3. Application of superphosphate after planting, and super plus lime in winter of 1998.
4. Annual form pruning and removal of any branches >30 mm, finished in 1999 (11 years).
6. Gradual removal of eucalyptus nurse crop, in some cases by poisoning before felling.
7. Prune to 4 m only.
8. Thin (1 in 2) at age 12 years (1999) to 4m by nearly 7m or **350 SPH**.
9. Superphosphate applied at 440 gm/tree and lime at 1kg/tree in 2001.
10. Trial showed no response to K or N.
11. Thin again at in 2003 (15 years) and in 2006 (18 years) to better approximate 6-7m spacings or **204 SPH**.
12. Stopped use of residual herbicides in 2005; now use glyphosate and/or mowing.
13. Severe snow damage in winter of 2006 and occasional wind damage.
14. Current trials: (1) effect of fertilisation with triple superphosphate at 1kg/tree or 277 kg/ha.
(2) comparison of weed control (Glyphosate and/or Simazine) vs. mowing only, and the effect of a variety of fertilisers (lime, molasses, fish fertiliser, humic acid, seaweed meal, mono ammonium phosphate) to promote biological activity in the soil.
15. Current tree size:
'Combined Trial': (2007) 23.1cm diameter, increment of 1.2cm per year. (2006 - pruned height 4.1m, tree height 11.0m). This season, early measure, increment of 0.70cm.
'New Trial': 2007 22.3cm diameter, increment of 1.2cm per year. (2006 - pruned height 3.8m, tree height 9.90m). This season, early measure, diameter increment of 0.96cm.

Management of Eucalypts:

1. For nitens and regnans, thin (1 in 2) to about 4-6m by 6m or **400-278 SPH**, and some later thinning to about 8.3m on average by 6m or **204 SPH**.
2. For camaldulensis, select trees with the best form (irregular spacing).
3. Pruned to 6m (some to 9m) over a number of years with a DOS of about 110mm (branch size < 25mm).
4. Removed all irregular eucs., milled all straight ones by 2005. (Some bad gum veins in regnans but regnans and nitens generally OK; camaldulensis sleepers and sawn timber warped, split and cracked.)
5. Sold thinnings for firewood.

Management of Pines:

1. Establish at 800 SPH (1993) with aerial application of boron at age 3 (1996).
2. First prune and thin (1 in 9) at age 6 (1999), prune 1-2 m, 110mm DOS.
3. Second prune and thin (1 in original 3) to approximately 550 SPH at age 7 (started 2000, finished 2002), pruned 2-4m, 100mm DOS.
4. High pruning, 4-7m, at age 10 (started 2003 finished 2004).

5. Production thin to about 350-400 SPH started in 2007. In 3-row blocks, by removing evenly OR by removing all trees in two outside rows? In 2-row blocks by removing evenly, leaving gap adjacent any good blackwood trees. (Average diameter increment of blackwoods among tall pines was 1.30cm among others was 1.35cm.) Pine-blackwood interactions via felling and competition.

Management of Macrocarpa:

1. Main block in Swampy Paddock at far end, others scattered about.
2. Established at 800 SPH (1993), pruned, thinned, removed some trees with canker, then in 2007 removed all macros and replaced with *E. nitens* except for some which seem to be resistant.

List of labelled conifers in yard:

Cupressus arizonica (Blue Ice)	Chamycyparis lawsoniana (Snow Queen)
Cupressus (Artic)	Thuja plicata (Can Can)
Cupressocyparis ovensii	Cunninghamiana lanceolata
Juniperus (Kaizuka)	Callitrie rhomboi
Juniperus (Blue Heaven)	Metasequoia glyptostrobos
Thuya occidentalis (Ohlendorffii)	Picea stichensis
Thuya (Beverleyensis)	Taxodium distichum
Juniperus pachyphloea	

Machinery demonstrations:

Samples of wood sawn from woodlot trees: camaldulensis, regnans, pine, Blackwood.

Samples of wood sawn from trees bought in: poplar, Blackwood, Indian cedar. Other samples of hardwood use in house finishing: MAH/Tasmanian oak, Blackwood.

Sawmill: home made bandsaw mill using Wood Mizer blades, 20 HP Honda V twin, modelled on North American 'Norwood' design.

Forwarder: 1980s model FMV, Swedish made, (well worn) machine. Features: 8 wheel drive, articulated trailer pivot point for manoeuvrability, extension boom reaches 5m, lifts about 1Tonne close in.

Fork lift: useful for yard work and taking sawn wood to drying shed. To date, the drying shed is a hay barn with too much direct sun. Planning to build a drying shed with windbreak cloth and board exterior (50mm gap between boards). Expect will then need a solar kiln.

Furniture: Blackwood bed side table, regnans tea trolley.

Milling of pine log.

List of bird species we feed and/or encourage:

Bantams.

Peacocks and peahens.

Guinea fowl, pair and a spare.

Ring-necked Pheasant, Californian Quail.

Bellbirds, fantails, warblers.

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