Forests Notes

Heathcote and Rushworth State Forests

Carolyn Slijkerman

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State Forests surrounding Heathcote and Rushworth are part of the Bendigo Forest Management Area. They include the State forests of Rushworth, Cornella, Argyle, Redcastle, Dargile, Costerfield, Redcastle Graytown, Knowsley, One Eye and Tooborac. Combined, these unique Box-Ironbark forests cover 24,850 ha.

Photo: Red Ironbark (DEPI: Stimson)

The Department of Environment and Primary Industries (DEPI) manages these areas for recreation, forestry, bee keeping, mining, firewood production as well as conservation of water and biodiversity.

Box-Ironbark forests have a varied history and host unique plants and animals. They provided food, materials and refuge for Indigenous people and were intrinsic to their spiritual beliefs. Their importance continues today, significantly contributing to Victoria's infrastructure, employment and social wellbeing.

In the early years of European settlement, there was minimal control and management of Victoria's forests.
Greater environmental awareness and changing attitudes has seen legislation enacted that has contributed to sustainable management. Following the 2002 Environment Conservation Council recommendation, Box-Ironbark forests are now variously classified as State forests, Regional Parks, National Parks and Nature Conservation Reserves.

Our Box-Ironbark forests tell a fascinating story of change and survival. How you use the forest today will shape our forest of the future. How will you help shape the next chapter?

Getting here

Heathcote is located about 100 km north of Melbourne. Follow the Hume Highway until Wallan. Take the Northern Highway toward Kilmore, Pyalong and Heathcote.

Rushworth is located approximately 150 km north of Melbourne. Follow the Hume Freeway until Seymour. Take the Goulburn Valley Highway to Murchison. Turn west here, taking the Bendigo-Rushworth Road towards Rushworth.

Aboriginal life in the forest

The landscape surrounding Rushworth and Whroo is the traditional home of the Nguraiillam-wurrung people. After Europeans arrived, the area was shared between three adjacent clans – the Yorta Yorta to the north, the Jaara Jaara to the west and Taungurung to the south and east. The range of the Jaara Jaara clan to the west included One Eye and Knowsley State Forests. The range of the Taungurung clan to the south and east included Tooborac State Forest. Dargile and Costerfield State Forests are located on the boundary between the Jaara Jaara and the Taungurung.

Marriage was permitted between clans and several dialects were spoken. Ironbarks were called *yirrip* and box trees *buludj*. Ironbark blossoms were used to make a sweet beverage called *yeerip korr* and bark from box trees was used for building shelters. Other foods included yam daisy roots, orchid tubers and lily bulbs.

Trees were also used to make weapons such as a *lil-lil* made from Yellow Gum, which could break your limbs, fracture your ribs and penetrate your skull. Shields called *mulka* were made from Red Ironbark and Yellow Gum.

Possum skins were wrapped around the handles of shields to protect knuckles and provide additional grip. Possum skins were made into warm coats. Coat ownership was identified from totems scratched into the possum skin using shells traded with coastal tribes.

Totems local to this region include eagles, crows and bats. Totemism is a complex part of Aboriginal law that connects people to the land and binds individuals to their tribe, gender roles and future partner. Totemism was an important system that avoided inbreeding and prevented over-hunting of particular species.

During the 1850s gold rush, Indigenous people held various roles including as shearers, wood cutters and stock keepers. Many also joined the miners to seek out their fortune.

The Yorta Yorta, Jaara Jaara and Taungurung people continue to have an interest and involvement in the management of forests in this area.

European exploration and settlement

In 1836, Surveyor-General Major Thomas Mitchell explored this district. He crossed the Coliban and Campaspe rivers, passing south of Mia Mia and Heathcote, crossing the McIvor Creek (named after one of his survey team). Major Mitchell then travelled south of Costerfield to follow the Deegay Ponds to the Goulburn about 20 kilometres downstream from the present site of Seymour. By 1850, pastoralists had extensively settled the area.

Gold fever

Gold was found towards the end of 1852 at Golden Gully near Heathcote but kept secret for some time as the pastoralist settlers wished to keep the district quiet and undisturbed. When gold was discovered in Main Gully near Rushworth in 1853, the McIvor rush near Heathcote began.

In *Gold Rushes of the Fifties* Adcock describes the hazardous life on the goldfields;

"The colony at the period when McIvor was rushed, swarmed with desperadoes… but nowhere were ruffians and outrages so numerous as at McIvor, daring robberies often with violence and murder were committed within a stone throw of the police camp."

Charcoal and eucalyptus oil industries

Charcoal production from dry Red Ironbark, Grey Box, Yellow Box and Red Gum began in the gold rush. Charcoal was then produced by covering fallen tree trunks with turf, leaving a small opening at one end for a fire. Once the wood was well alight the opening was closed. It is likely that charcoal production was performed by small groups of men working with wood cutters. Charcoal pits were built in Redcastle-Graytown State Forest.

Demand for charcoal increased during the second half of the 19th century and pressure for timber also grew. Charcoal production was highest during the Second World War when petrol was scarce. It was used for motor vehicles and industrial uses including the electricity supply plant in Heathcote. The Victorian Government established a State Charcoal Branch to coordinate charcoal production. Demand for charcoal decreased after the Second World War.

William Begg established a eucalyptus distillery in Rushworth in 1874. Areas of mallee throughout Rushworth State Forest are still used for eucalyptus oil production. In 1917, the Jones Brothers Parramatta Gully eucalyptus works was established and continues operating today.

Photo: Area of Mallee used for eucalyptus oil production, Rushworth State Forest.

The history of timber production

The local timber industry has provided employment since European settlement. Forests provided vital resources and employment throughout the gold rush, war and the Great Depression. The structure of Box-Ironbark forest has changed due to various silvicultural techniques applied to tend, utilise and regenerate the forest.

The timber licence procedures of 1839 established by the Department of Crown Lands and Survey were ineffective at controlling timber use. In July 1852, the Victorian Government amended the procedures, but little control was gained. One clause indicated that while a lessee in a settled district was not allowed to sell or barter timber they were *"at liberty to cut any timber growing thereon for domestic uses, firewood, fencing or other convenience for the enjoyment of the land."*

In 1835, forests surrounding Whroo were described as *"covered with tolerably heavy timber, the trees on the south towards Mount Ida being stunted and far apart, whilst on the east towards Murchison, on the Goulburn, a dense scrub took the place of the comparatively open forest."* In December 1853, many gold diggers left the area as water became increasingly scarce, and there was *"neither wood nor water at or near Whroo."*

A decade later in 1863, forest resilience and change in forest structure was demonstrated when the *"whole forest valley had become again a forest of tall and closely-growing trees."* At this time, previously abandoned diggings were converted into dams and reservoirs and soil was reworked. The forest was again cleared, with timber used for building and mining until the gold was extracted from tailings and lack of water caused diggers to abandon the area.

In 1885, control of forest use improved through policing and revenue collecting. From 1899, silvicultural treatment of degraded stands was undertaken to restore forest vigour and health.

From the late 19th century to the late 20th century, local forests were used for sleepers, poles, fencing materials and firewood. As local railway lines opened from 1888 and transportation was readily available, the pressure on forests increased. Production and transport of railway sleepers, bridge and mining timbers and firewood provided employment for hundreds of men in this district. In Victoria in 1898, there was demand for 610,000 railway sleepers. From 1896 to 1900, an average 50,000 sleepers were harvested from forests between Rushworth and Heathcote each year.

1900–1945

Pole cutting

Local forests provided 30 to 40 metre-long poles to carry electricity lines to Heathcote from 1912 to 1913.

Around the time of the great drought in 1914, the Forestry Commission established a pole cutting camp in Redcastle State Forest as a source of employment. From 1917 to the 1970s, local forests provided poles for carrying electricity and telephone supply across Victoria. Poles were also used for sheds and buildings. In the 1930s, pole and sleeper production decreased partly due to a shortage of suitable trees.

Photo: Telegraph Pole Cutting 1923, Tunstall State Forest (DEPI)

Firewood cutting

Demand for firewood from Melbourne increased in the early 1920s and its price rose to £6 per truck at the Heathcote railhead.

In the 1920s, a typical firewood operation cut dry timber (trees previously killed by ring-barking) which was split into seven-foot (2.1m) lengths called 'billets'. These were stacked on drays pulled by either a single horse, wagons with horse teams or wagons with steam traction engines.

Photo: A steam traction engine in strife 1930–1931

Billets were carted to mills where they were cut into single foot (300 mm) long blocks or into two foot 4 (650 mm) inch lengths for baker's ovens. Blocks were then stacked into rail wagons.

Imagine being a firewood cutter like Tom Hall with his horse and dray. Tom Hall worked 14 hours a day six days a week. He started at 5 am, travelling four hours along a track covered with potholes to Mt Camel. Tom cut two loads of wood per day, and the return journey took six hours once the drays were loaded. It took six loads to fill one railway truck and the Royalty price was 17 shillings per truck. At this time, Tom Hall operated two drays and his profit was 10 pounds per week.

Costs associated with this occupation included the upkeep horses. Chaff cost about £3 per ton and oats about 1/6 (one shilling, six pence) per bushel (£40). Horses were reshod each month, which cost six shillings per set.

The Great Depression 1929–1932

In mid 1930, Australia's unemployment rate was 21 per cent and peaked at almost 32 per cent two years later. At the height of the Depression, men arrived daily on the train to Heathcote looking for work at the sawmills.

Demand for firewood decreased as many Melbourne residents could not afford this luxury. At this time, Tom Hall's wage dropped to £3 per week. Tom was relatively lucky and describes how other men *"walked the road aimlessly"* with *"little or no work available... begging for food... and ... living on rabbits"* affectionately known as *"underground mutton"*. Local townspeople and farmers organised hare and rabbit drives to send meat to unemployed city families.

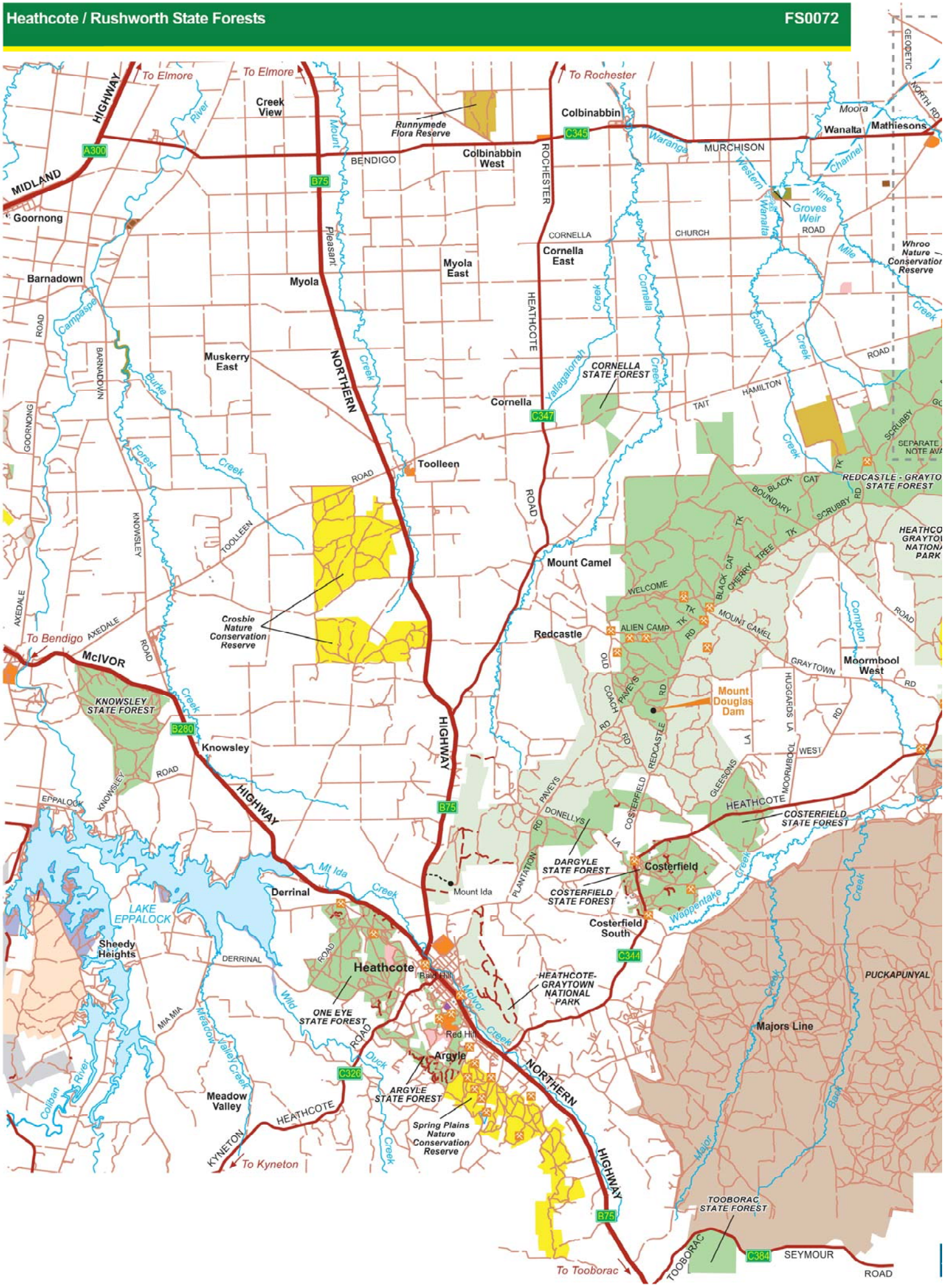
The Federal Government established 'Susso' or relief camps to occupy previously unemployed men. Comfort was not a priority; men were issued with a tent, tent fly, three sheets of corrugated iron to make a chimney, two blankets, frying pan, wash dish, set of floor boards, hurricane lamp and fencing wire. Men worked in areas including One Eye Forest, Costerfield, Toolleen and Argyle where they cut green wood was into seven foot lengths. Locals then used a two tractor sawbench to cut the timber into two foot-six inch lengths which were distributed to the unemployed of Melbourne. Silvicultural work such as removing larger trees to allow young coppice to grow was also conducted.

The Second World War

The onset of the Second World War increased demand for local timber so that railway transport of timber was supplemented with road transport. Tom Hall recalls that an average of 400 tons of wood left Heathcote per day. Ron Risstrom, a Rushworth mill owner remembers timber mills operating on the Rushworth branchline; there was one at Hammonds siding, two at Waranga, six at Rushworth, four at Moora, two at Wanalta and three at Colbinabbin. At one time, the Hammond Brothers dispatched eight railway trucks per day of firewood collected from forests surrounding Rushworth.

During the Second World War, Prisoner of War (POW) camps were established at Dhurringile, Murchison (Camp 13) and Graytown (Camp 6). The Graytown camp was an offshoot of Camp 13 and housed about 250 Italian and later German POWs. The main activity of people in these camps was harvesting firewood for Melbourne and silvicultural works.

Camps were also established for internees who were civilians living in Australia or other Allied territories considered a security risk due to their nationality. Internee camps housed about 1,000 people. Camps



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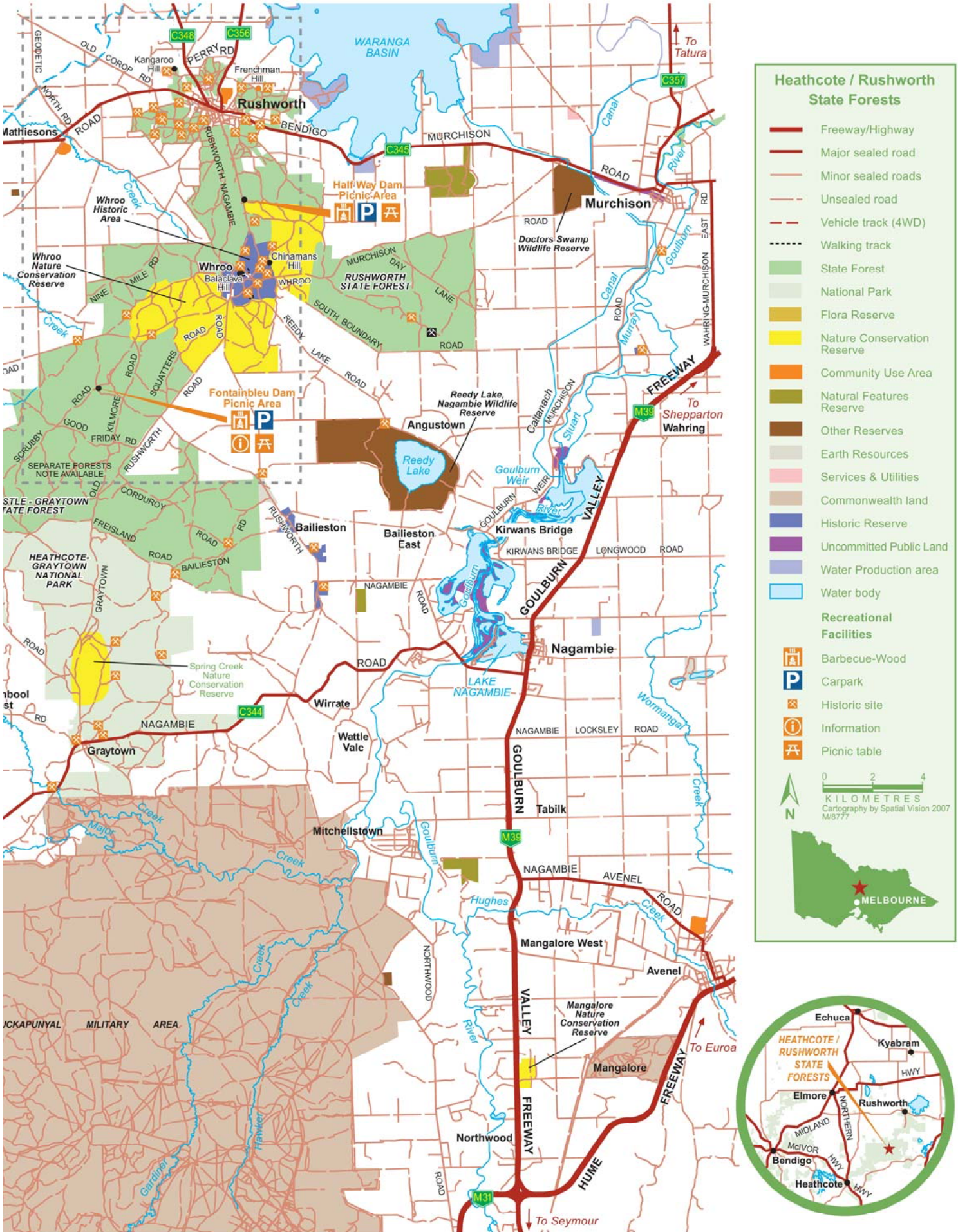

1 and 2 were located at Tatura and held single males, mainly German and Italian. Camps 3 and 4 were located at Rushworth. Camp 3 held family groups, mostly from Germany. Camp 4 held family groups mostly from Japan. Family camps had school accommodation and designated play areas for children.

1945–1990

After the Second World War, demand for firewood decreased as oil heaters and natural gas was used for heating in metropolitan areas.

In the early 1950s, post cutting became the main focus of the local timber industry. From the 1960s to the 1980s, demand for posts, strainers, stays, shed poles and round rails for horse and cattle yards outgrew supply. Timber was then no longer available in large quantities from Box-Ironbark forests.

The forest today

The days of being *"at liberty to cut any timber growing thereon for domestic uses, firewood, fencing or other convenience for the enjoyment of the land"* are long gone. Changes in forest policy since European settlement have designated Box-Ironbark forest areas as Parks and Reserves, and areas of State forest are managed to balance multiple uses including recreation, bee keeping and mining as well water and biodiversity conservation.

Timber from local forests is now harvested sustainably and continues to be used for firewood, posts, strainers, stays, flooring and decking. Silvicultural thinning operations are undertaken to improve timber quality and return the forest structure to its original state.

Photo: Rushworth State Forest

Vegetation communities

State forests surrounding Rushworth and Heathcote contain Red Ironbark (*Eucalyptus tricarpa*), Grey Box (*E. microcarpa*), Yellow Gum (*E leucoxylon*), Red Stringy-bark (*E macrorhyncha*), Red Box (*E. polyanthems*), Yellow Box (*E. melliodora*), Long-leaf Box (*E. goniocalyx*), River Red Gum (*E. camaldulensis*), Blue Mallee (*E. polybractea*), Green Mallee (*E. viridis*) and Bull Mallee (*E. behriana*). Grey Box dominates forests surrounding Heathcote while Red Ironbark dominates Rushworth forests.

These forests typically have shallow soils with an annual rainfall of 500–650 mm. Relatively low rainfall and poor quality soils means growth rates in these forests are slow. A tree with a diameter of about half a metre is likely to be a century old.

As you travel through these forests look for changes in vegetation, which indicate changes in soil type and quality.

- Mixtures of Red Ironbark, Red Box, Long-leaf Box, and Red Stringybark can be seen on ridges.
- Yellow Box and River Red Gum tend to dominate drainage lines.
- Communities containing Grey Box and Yellow Gum grow on broad alluvial flats, with almost pure Yellow Gum growing on shallow soils and pure Grey Box on wetter soils.
- Mallees grow in isolated clumps within Red Ironbark stands.

The sparse understorey of these forests forms three layers: a lower ground cover, a tall shrub layer and a small tree layer.

- The lower ground cover consists of wattles, parrot peas, bush peas, bitter peas, grevilleas, heaths and several grasses. Wildflowers including orchids are prolific after heavy autumn and spring rain.
- Typical plants in the tall shrub layer include hakea, acacia, sweet bursaria, crossleaf honey myrtle and shining cassinia.
- The small tree layer includes eucalyptus coppice, golden wattle and cherry ballart.

Creatures in the soil

Invertebrates are considered the foundation of ecosystems, as they are vital to forest soil quality and nutrient cycling. Millions of ants dominate these Box-Ironbark forest soils. Their tunnelling is vital for improving soil structure, friability and drainage. Some ant nesting tunnels extend 10 m below the surface. Ants often remove viable eucalypt seeds, leaving forests to predominantly regenerate through coppice shoots from tree stumps. Other species that live in the soil include wolf, trapdoor and tunnel web spiders, scorpions, termites, springtails, slaters and millipedes.

Listen for the call of the **Red Eye *Cicada, Psaltoda moerens*** during summer. Males increase the intensity of their call by gathering in small areas to attract more females. Nymphs live in underground chambers and feed on sap from Eucalypt roots until they mature. Look for moulted shells left behind by cicadas as they mature.

Discover natures living treasures

The forests of Heathcote and Rushworth support important species for biodiversity, such as the Brush-tailed Phascogale, Squirrel Glider, Swift Parrot, Red Rumped Parrot, Powerful Owl, Painted Honeyeater, Regent Honeyeater, Williamson's Wattle, Ausfeld's Wattle, the Maroon Leek-orchid, Austral Grass Tree, and the Squirrel Glider. Each species is critical to the healthy functioning of forest ecosystems.

The Austral Grass Tree, *Xanthorea australis* is native to this area and can live for 600 years, growing just 1–2 cm per year. The base of a Grass Tree can take 10 years to form from old leaf bases bound by resin. This resin was used by Aboriginals to make adhesives. They also used the tall brown stalks to make spear shafts, the tough leaves to make knives and the soft wood from the flower stalk for fire drills. Fire induces production of Grass Tree flower spikes, which can grow 4 –5 m in height.

(Photo: Austral Grass Tree Community (DEPI/Marshall)

Ausfeld's Wattle, *Acacia ausfeldii* is found only in the Bendigo and Heathcote area and in the Mudgee region in New South Wales. It is a shrub to small tree standing 2–4 m tall with green, thick foliage. Phyllodes are gently curved and are 2–6 cm long and 2–6 mm wide. Golden flowers appear from August to September.

The Squirrel Glider, *Petaurus norfolcensis* is a medium-sized arboreal marsupial endangered in Victoria and unique to the Box-Ironbark forests surrounding Heathcote and Rushworth. Squirrel Gliders are threatened by loss of habitat, particularly large hollow-bearing trees. A single glider may rotate between several nests within its territory. They can glide up to 90 m from tree to tree using the fold between their front and hind limbs on either side of their body.

Photo: Squirrel Glider (DEPI/Stimson)

Squirrel Gliders forage from dark until early morning and feed on insects, seeds, sap, gum, honeydew, nectar and eucalypt pollen. Eucalypt species that provide important habitat and food include Grey Box, Red Ironbark, River Red Gum, White Box and Yellow Box.

Squirrel Gliders have a very bushy, long tail that is grey at the base and black towards the tip. It looks similar to the Sugar Glider. They have a white belly, blue-grey fur above with a dark stripe from between their eyes to their mid-back. An average Squirrel Glider weighs 200–260 g and is around 48 cm long, including the tail.

The Regent Honeyeater, *Xanthomyza phrygia* is widely dispersed and can be found in the Argyle State Forest. It is considered endangered in Australia with the total population estimated to be less than 1,500 birds.

While flocks originally consisted of 50–100 birds, loss of habitat has resulted in birds now being found by themselves, in pairs or small groups. Regent Honeyeaters feed on insects such as lerps, fruit and nectar from the Eucalypt species Mugga Ironbark, White Box, Yellow Box, Yellow Gum and Blakely's Red Gum.

Regent Honeyeaters breed in spring and make nests from bark and dried grasses. Two or three eggs are laid per pair which are incubated by females. Males help feed young once hatched.

The Regent Honeyeater has a black and yellow pattern on its breast and its wings and tail feathers are black with yellow patches. They measure 200–225 mm long, with males larger than females.

Explore the forest

- Open your senses and take time to relax and reflect. How would you survive in this environment living a similar lifestyle as the Nguraiillam-wurrung Aboriginal people? Where would you seek shelter and find food to eat?
- Imagine living on the goldfields in a tent city. Compare the contrast of the hardship of working with pick and shovel in chilly winters and scorching dry summers, to the elation of finding your fortune.
- Get active! Walk along one of the many tracks around the forest, ride your horse or bike along the bush roads. Be sure to stay on formed roads when riding.

Photo: The First Rushworth Cemetry 1853-1861 (DEPI)

- Camping and picnicking is a great way to relax and enjoy the Box-Ironbark surrounds. Most camping spots are informal bush camps suitable for the self-sufficient camper. Remember to look after the forest by taking your rubbish home.
- Take your dog for a walk, making sure it is under control and does not disturb wildlife or other visitors.
- Try your luck fossicking or prospecting. All prospectors require a Miner's Right. This lasts two years and costs around $30. You can purchase a Miner's Right online from the Department of Primary Industries website at www.depi.vic.gov.au. Remember to re-fill any holes you dig.
- Enjoy a car or motorbike tour of the forest, exploring the extensive road network. Make sure you are licensed and registered and always stay on formed roads.
- Test your hunting skills with licensed firearms and protect the forest from pest animals such as foxes and rabbits. You must also have a shooter's licence.
- Explore and search the forest for clues that give us evidence from the past. Remember to leave everything as you find it.

Let's look after our living museum!

- All native plants, animals, historic sites are protected by law.
- While campfires are part of the outdoor experience, sparks can easily ignite the bush. Observe all fire regulations and Total Fire Ban days. Always use existing fireplaces or dig a 30 cm-deep trench. Ensure your fire is less than one metre square and at least three metres clear of burnable material. Collect only dead wood from the ground. Never leave fires unattended and ensure they are completely extinguished before you leave.

FOR YOUR OWN SAFETY

Take care for old mine shafts when walking through the forest.

More information

The Department of Environment and Primary Industries (DEPI) is responsible for managing Victoria's State forest.

Visit the DEPI website at www.depi.vic.gov.au

For more information contact:

- DEPI Bendigo office ☎ 5430 4444
- DEPI Customer Service Centre ☎136 186

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