

# Forest Practices news

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## Management for flora in the Blue Tier area

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There has been much controversy about forestry operations in the Blue Tier area. However, amidst the scenes of protest, there has been little attention paid to the comprehensive planning that has been undertaken for Blue Tier and its surrounding forests. This article describes some of that planning from a botanical perspective, for Blue Tier generally and more specifically for two logging coupes (GC134D and GC134F) located in State forest on its southern flanks.

### **Blue Tier – a mighty bulwark in an evolving landscape**

Blue Tier is a remarkable place. Its brooding mass, frequently shrouded by cloud, marks the eastern limit of the Northeast Highlands. The landscape reflects many elements of Tasmania's evolution and land use history, and perhaps holds a mirror to its future.

The track to Mt Michael – the highest point on Blue Tier, begins at the tin-mining "township" of Poimena – home to a thriving community between the late 1870's and 1906, but today represented by clearings and mounds where buildings (and their inhabitants) once stood. The town in its heyday boasted a blacksmith, butcher's shop, several cottages, a school, two temperance hotels and a hotel that catered for more

traditional tastes. The track winds past earthworks and abandoned machinery – their hard edges softened by recolonising shrubs and ferns.

On a clear day, the stunted celery-top pines on Mt Michael barely impede the vista of forests and farmland, with the sea and the islands of the Furneaux group shimmering in the distance. But there is a good chance that the panorama will be obscured by the rain or mists that sustain the myrtle, pines and their rainforest brethren, and cause the leeches to dance with joy. One's gaze is then focused on a viewfield of a different scale – the texture of moss and lichens, patterns etched on leaves by hungry insects, and the organic forms of granite boulders sculpted by 300 million years of exposure to the elements.

The interaction between the environment and vegetation is evident at every level. The current climatic period has favoured forests, which displaced the treeless vegetation – grasslands and heaths – of the cool, dry interglacial epoch. The forests themselves demonstrate the ongoing sparring between the Gondwanic and Australian elements of our flora – the rainforest species in the humid blue corner, and in the red the fire-promoting eucalypts and their sclerophyllous support

crew.

Callidendrous rainforest covers much of Blue Tier, and spills down sheltered slopes and streamlines, particularly to its south and east. Eucalypt forests, most typically dominated by *Eucalyptus regnans*, *E. obliqua* and *E. delegatensis*, are widespread on the slopes. Old-growth forests on sheltered and less accessible sites have understoreys of rainforest trees and giant tree ferns. Regrowth forests, with an understorey of broad-leaved shrubs, have regenerated more recently on areas disturbed by wildfire, mining, logging and even agricultural clearing (much of the country around the Tier was covered by grazing leases, prior

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# Feature

from front page

to its dedication as State forest in 1956). Dry sclerophyll forests, often with understoreys of tea-tree, are confined to sites more exposed to sun and wind.

On Blue Tier itself, expanses of heath and native grassland – shades of the glacial landscape – grow on sites where forest has been cleared and soil bared by fire, machinery, axes and the ground-sluicing employed by the miners. It is ironic, perhaps, that activities that many people would today consider environmental vandalism have contributed to the area's diversity of habitats, landscapes and cultural heritage. Greg Jackman, in his archaeological study of Blue Tier (1997), describes how the surface tin deposits were exploited: "On the Tier, hectare upon hectare of myrtle and sassafras were cut down and every creek and watercourse tapped in order to supply water for stripping away the shallow sandy soils containing the fine tin grains." The grasslands are now maintained by browsing marsupials, but pepperbush, tea-tree and other pioneer species are encroaching on their margins.

Much of Blue Tier was proposed as a reserve in 1990, and in 1997 (as part of the Tasmanian Regional Forest Agreement) further reservation was recommended to incorporate important cultural and natural values (including Poimena itself and extensive areas of native grassland). The 5060 ha Blue Tier Forest Reserve, proclaimed in 1998, includes about 2600 ha of rainforest, 1000 ha of eucalypt forest, 500 ha of other forest (mainly *Acacia dealbata* forest) and 950 ha of native grasslands, heath and other non-forest communities. The Frome Forest Reserve (940 ha), mainly supporting wet eucalypt forest, is located two kilometres to the west of Blue Tier FR. Much

of the forest in the reserves is old-growth.

Studies associated with the RFA also identified the lower slopes around Blue Tier as a refuge for rainforest during the last glacial epoch, and a likely source of rainforest reinvasion of the Northeastern Highlands following glacial periods that are bound to descend on Tasmania in the future. Provisions of the RFA, as well as Forestry Tasmania's policy to protect relict rainforest, mean that rainforest communities outside reserves are protected by prescription (e.g. by extension of streamside reserves and use of buffers) when logging occurs in adjacent eucalypt forest.

Several State forest coupes to the south of Blue Tier have been logged over the last few years. Landscape level planning, and individual Forest Practices Plans, include provisions to account for mining heritage, protection of rainforest and maintenance of populations of threatened fauna species such as the Simsons stag beetle (*Hoplogonus simsoni*). The management plan for this species has involved research, monitoring and extensive liaison between staff of Forestry Tasmania (FT), Forest Practices Board (FPB) and the Threatened Species Unit (Dept of Primary Industries, Water and the Environment).

Land use planning has also involved discussions between FT, Break O'Day Council and local community groups, including groups (e.g. Friends of Blue Tier) which want existing reserves extended. Partly as a result of these discussions, FT agreed that State forest logged between Blue Tier FR, the Tasman Highway

and Murdochs Road would be regenerated to native forest (rather than being converted to plantation on favourable sites). In reality, much of the forest outside Blue Tier FR is not available for logging for topographic or other reasons, including protection of cultural heritage (e.g. the Anchor stamper battery and the Don mining complex) and natural values, such as the Blue Tier Giant – the huge tree (19.4 m girth) first located by the Friends of Blue Tier on the slopes of Lehnerns Ridge.

This brings us to the discussion of the two Goulds Country coupes – it has taken a while to get to this point, but it is difficult to gloss over the complexity of vegetation, values and changing land uses in the Blue Tier area, which allows the logging plans to be put into context.

## Goulds Country 134D

GC134D is located east of Anchor Road, mainly on south and west-facing slopes (see map). The coupe has a total area of 57 ha, but is separated into two sections to take account of landscape values. The



Cultural heritage of Blue Tier: Relicts from the mining era being colonised by pioneer shrubs and visitors.

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area between the two sections will be logged after regeneration in both sections is well-established (over 5 m in height).

Four regrowth forest communities (*E. regnans* forest, *E. obliqua* tall forest, *E. delegatensis* tall forest and *Acacia dealbata* forest) were identified in the vegetation assessment conducted during preparation of the Forest Practices Plan (FPP). All communities are reserved in Blue Tier FR and Frome FR. These forests originated from disturbance, probably associated with mining in the 1930s. *Acacia dealbata* forest, which occupies a relatively small area of the coupe, usually occurs on sites where eucalypts fail to establish successfully following major disturbance in wet eucalypt forest.

Use of databases and other information indicated that the coupe was unlikely to contain threatened plant species. It is uncommon for wet eucalypt forests to contain such species: they tend to be found in Tasmania's drier forests and woodlands, many of which (unlike the wet forest communities present in the coupe) have been extensively cleared or irreversibly modified by two centuries of European land use.

Logging in GC134D commenced in April this year, and was the subject of protests, arrests and extensive media coverage. The silvicultural system is clearfell, burn and sow (i.e.) clearfelling the current forest, followed by a hot burn of the logging residue and aerial sowing of on-site eucalypt species. Wet conditions have brought an end to activities until summer, with about two-thirds of the logging completed.

The controversy about forest management in this coupe highlights the ability of Blue Tier's wet eucalypt forests to recover from major disturbance. In the decades since the forests of GC134D last regenerated,



Regrowth wet eucalypt forest on Blue Tier, adjacent to GC134D. Photo: Andrew Crowden.

they have developed sufficient biodiversity and integrity to evoke an intense campaign for their reservation. The same forests contain an estimated 9400 tonnes of timber (up to 40% being suitable for sawmilling) - providing a return of about \$1.3 million to the Tasmanian economy. There is a strong implication that such forests can be sustainably managed for economic and ecological values, particularly given the level of reservation of wet forest communities in the region.

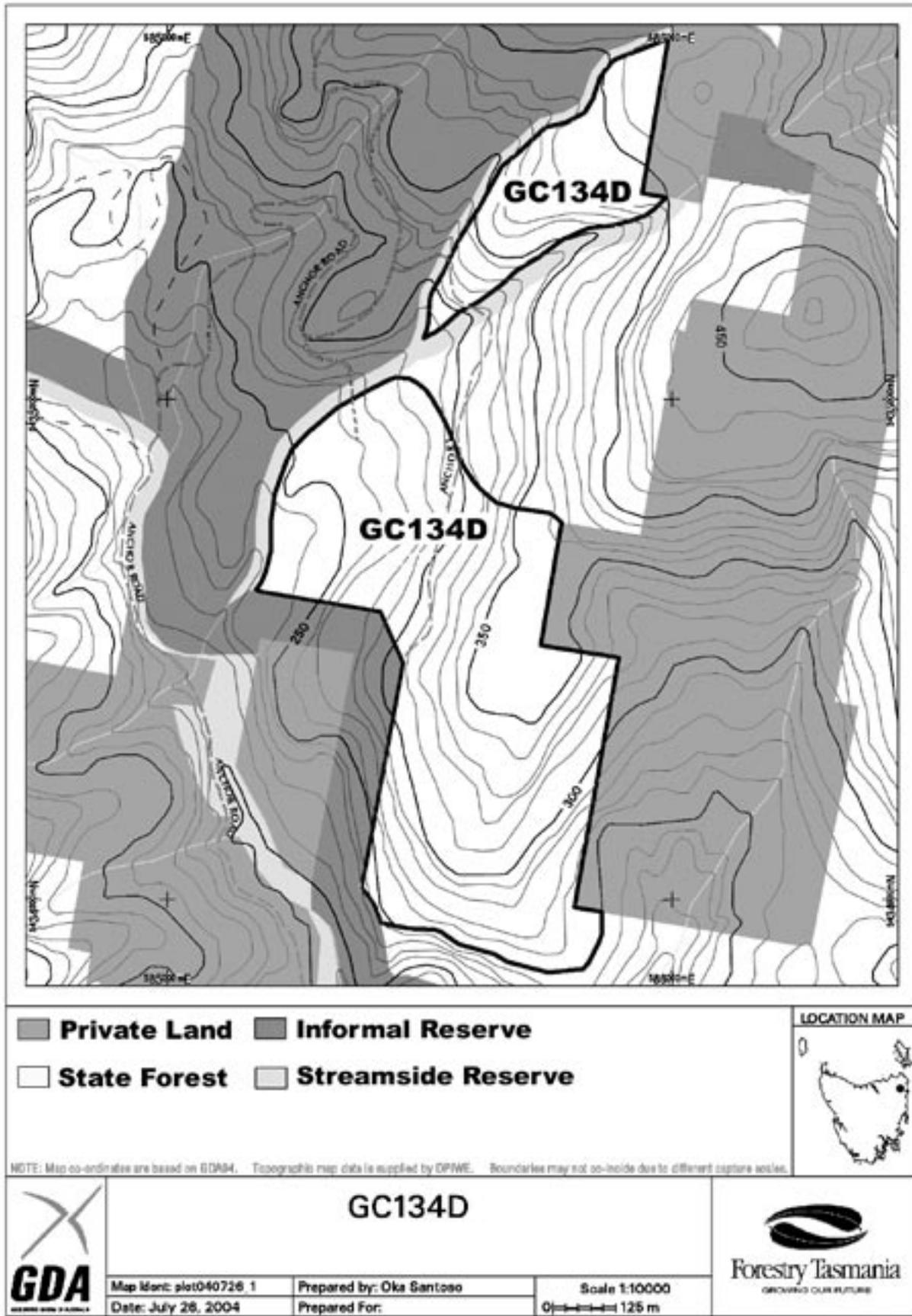
## Goulds Country 134F

GC134F is 4 km to the west of GC134D on Crystal Creek Road. It has an area of 26 ha, mainly located on a broad bench. The coupe supports regrowth forest that regenerated following near-clearance associated with mining operations in the 1930s. Aerial photographs taken in the 1950s show the extent of this disturbance. The proposed silvicultural system is regrowth retention - a method of logging which maintains some young trees on site. Eucalypt regenerations will be achieved by a lower intensity burn, followed by aerial sowing of seed of *E. delegatensis* and *E. obliqua*.

The vegetation of the site was assessed using a similar approach to that used in GC134D. Two wet eucalypt forest communities (*E. obliqua* tall forest and *E. delegatensis* tall forest) were identified in the coupe. Information on databases indicated that no threatened species had been recorded from the coupe or its surrounds. However, Laurie Gregson (FT Bass District) found an unfamiliar eucalypt near the southern boundary of the coupe, where the bench grades into slopes with occasional outcropping granite. Samples were dispatched to the FPB's Botany section. A few characteristics sparked interest - ridges on fruits and buds and a yellowish tinge to the bark and leaves indicated a relationship with the yellow gum group - a series of eucalypt species that had not been collected previously in the Northeast Highlands. There was further excitement (botanists are easily excited!) when this conjecture was supported by Professor Jim Reid and Associate Professor Brad Potts - eucalypt aficionados from the School of Plant Science at the University of Tasmania.

In November 2003, the site was

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visited by staff of the Forest Practices Board, Forestry Tasmania (Bass District and the Conservation Planning Section), Brad Potts (Uni. of Tasmania) and Beris Hansberry of the Friends of Blue Tier community group. Samples of leaves and reproductive material were collected from several trees, ranging in height from 5 m on exposed rocky sites, to 25 m on the more sheltered and humid slopes to the south of the coupe. The field diagnosis suggested that the species had close affinities with *Eucalyptus subcrenulata*

handsome open-growing form, their yellowish leaves and trunk seeming to glow in the afternoon light. A few seedlings and saplings were found, and there were also signs of some regeneration from coppice.

The presence of *E. subcrenulata* in this area is of great biogeographic interest. The nearest population is about 100 km away, on the northeastern rim of the Central Plateau. The species typically occurs at altitudes above 800 m, as its common name indicates. This would suggest that its occurrence

not sit comfortably with this explanation. In other parts of Tasmania, *E. subcrenulata* grades into *E. johnstonii* at lower altitudes, and the Blue Tier trees may also be intermediate between these two nodes on the yellow gum continuum. It is possible that *E. subcrenulata* occurs elsewhere in the Northeast Highlands, with other populations being mistaken for other gum-barked species (*E. viminalis*, *E. dalrympleana*, *E. brookeriana* or *E. regnans*).

The slope that supports most of the *E. subcrenulata* has not been logged in the past, though it seems to have been burnt by wildfire (possibly also associated with mining activities). The original coupe boundary excluded most of the *E. subcrenulata* population, but an additional buffer was subsequently added to provide further protection. A few *E. subcrenulata* trees are scattered in the coupe. The Forest Practices Plan has been modified so that such occurrences are preferentially retained (e.g. in wildlife habitat clumps). It is inevitable that some individuals will be affected by logging, but the prescriptions outlined above, plus the ability of the species to regenerate after disturbance, will ensure that there is negligible effect on the population.

The location of the *E. subcrenulata* population will be designated by Forestry Tasmania as a Special Management Zone (SMZ) for Flora. This means that maintenance of this value is paramount in any land management decision affecting this area. The SMZ abuts the north-facing slopes off Lehnners Ridge, which will also be managed to protect the big trees in old-growth *E. obliqua* forest, mentioned previously.

## Conclusion

The Blue Tier area contains magnificent examples of rainforest and eucalypt forest, as well as large tracts of country that have been



Fellowship of the Tree Ring: Allison Woolley, Andrew Crowden and Brad Potts pledge allegiance to *Eucalyptus subcrenulata* on Blue Tier.

(alpine yellow gum), and this was subsequently confirmed by analysis of chloroplasts. An inspection of the slope showed that *E. subcrenulata* occupied an area of at least 80 ha, in some places co-occurring with *E. obliqua*, and in others dominating a wet sclerophyll understorey. Some of the trees, particularly towards the upper slopes, had a

near Blue Tier is a relict of the colder glacial climate, in the same way that occurrences of *E. coccifera* on isolated peaks in the Eastern Tiers can be considered as survivors from this period. However, the relatively low altitude of this population (500-600 m) and its presence on sheltered slopes not subject to the temperature extremes of Blue Tier itself, does

# Feature

modified by the activities of the miners, loggers and graziers who worked the land. Blue Tier Forest Reserve and the nearby Frome FR, totalling 6000 ha, contain old-growth and regrowth forests, and relicts – rusting machinery and open grasslands being recolonised by shrubs – that show the resilience of nature and the transience of our footprint on the landscape.

Current and proposed forestry operations outside the reserves have been engulfed in controversy as dense as the mists that frequently obscure the Tier. But is the logging of these forests – which originated following massive disturbance some 60 to 100 years ago – so incompatible with the cultural, natural and recreational values of the area?

The detailed botanical assessments in coupes GC134D and GC134F, on slopes to the south of Blue Tier, take into account the conservation status of forest communities and species, and the requirements of the Forest Practices Code and RFA. In GC134F, an outlying occurrence of yellow gum (*Eucalyptus subcrenulata*), discovered during preparation of the Forest Practices Plan, has been protected by prescription and informal reservation. Within



Settlement near the junction of the Weld and Frome Rivers (possibly Moorina) associated with mining or logging (circa 1900). Photo supplied by Tasmaniana Library, State Library of Tasmania.

the coupes, the regenerating forest will pass through typical wet eucalypt forest successional stages, with their own mix of native species – generalists and specialists. In several decades, these forests should develop into regrowth forest comparable to that logged and fought over in 2004 and 2005.

At a landscape level, current reservation and management on State forest will maintain the

range of communities, habitats and species. Logging is part of the history and ecology of the Blue Tier area, and can form a valid part of its evolving story.

## Contributors

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## Guidelines for contributors

*Forest Practices News* is published quarterly by the Forest Practices Board, Tasmania. *FPNews* provides a means for communicating new ideas and developments among those interested in the sustainable management of Tasmania's forests. We particularly welcome contributions from practising Forest Practices Officers. We welcome both feature articles and shorter contributions of even just a paragraph or two. Please include illustrations with your contributions if at all possible. Contributions can be supplied either as hard copy or electronically. If forwarding material electronically, the address is [info@fpb.tas.gov.au](mailto:info@fpb.tas.gov.au). Please ensure that figures/pictures are sent as separate files and not embedded in Word documents. We look forward to seeing you in print in *FPNews*!

# Cultural heritage

## Armistead Aboriginal Site Recording Project

*Denise Gaughwin, Senior Archaeologist, Forest Practices Board*

*Collaboration between Gunns Pty Ltd, La Trobe University and the Forest Practices Board with the cooperation of the Tasmanian Aboriginal Land Council resulted in a large area of the Armistead property being surveyed in December 2003. Financial support came primarily from Gunns with additional costs borne by the Forest Practices Board and La Trobe University.*

Armistead was settled as a sheep property in the 1870's and has been converted to a tree farm. As part of the Forest Practices Plan, the FPBs Darrell West, Senior Aboriginal Heritage Officer, completed a survey of those areas that came up as high using the predictive statements in the Code. Darrell was pleasantly surprised when he began to recover many artefacts in the area. He was also wondering how he would have time to record all the information in appropriate detail given the size of the areas and the number of artefacts within. Darrell and I had assessed the Aboriginal and archaeological significance of the sites as very high and in need of recording and preferably professional study.

On a visit to his home State, Dr Richard Cosgrove was shown the site by Darrell West. Dr Cosgrove was so impressed by the site and the potential information about Aboriginal life ways that he first raised the idea of using the site for a project. Long term FPO's may remember Richard as the first archaeologist to work with the, then, Forestry Commission in the mid 1980's. This fortuitous visit meant that the sites may be able to be treated to a full analysis to recover maximum information about land use in the past.

Gunns Tamar had also come to

realise that they had important Aboriginal sites on the property and a number of reserves were created to manage these values. Funding for the travel and subsistence cost was provided by Gunns in recognition of the importance of the sites and need for good management. The Forest Practices Board offered additional funds and the full time assistance of Darrell. La Trobe University contributed funds as well as the staff time to supervise the project and write up the report.

Twenty students and staff from La Trobe University flew to Tasmania to spend two weeks living in the former shearing quarters at Armitstead recording the large numbers of artefacts located by Darrell West on the river terraces above the Mersey and Dasher Rivers. Richard had advised us that it was quite difficult for students in Melbourne to gain experience in lithic analysis in a real life situation and, as soon as he advertised the project on the notice board at the University, he was swamped with the names of those who wanted to be part of the team. Selection was difficult but from the enthusiasm and hard work of the students involved the right choices were made.

It was decided to use the project to provide training for a prospective Aboriginal Heritage Officer. Jay McDonald had been asking Darrell about work in this field for some time. With the advantage of similar aged students, staff of La Trobe and the expertise of Darrell the project was able to provide Jay with valuable experience. It was observed by the La Trobe staff that Jay applied himself so well to the task of learning more about artefact analysis that the Third Year students were asking him for advice after the first few days.



Darrell West and La Trobe University student recording artefacts

The final report is still to be completed but it will concentrate on aspects of lithic analysis, field survey, as well as the use and application of GIS to archaeological research. It will complement existing research on settlement patterns and resource procurement and processing in the Aboriginal period of settlement in Tasmania.

When it becomes available, I will summarise some of the results for this newsletter.

In addition to the formal report, several Honours students are working in detail on aspects of the data acquired for their theses that will be completed in December this year.



Jay McDonald, Aboriginal Trainee, recording artefacts.



Looking over the Aboriginal site towards the Mersey River.

# Ecology

## A new species of orchid from the grasslands of the northwest

Mark Wapstra, Senior Ecologist, Forest Practices Board

In December 1999, a field day to Surrey Hills to discuss the management of the highland native grasslands led to the chance discovery of a new species of orchid. The keen eye of one of the field day participants fell on a small patch of leek orchids amongst the native grasses and herbs. I collected a single specimen and forwarded it to orchid taxonomist David Jones from the Centre for

a new species but more specimens would be needed for a description to be made.

The following year, Hans and Annie Wapstra collected specimens from the same site and also another nearby grassland. Since then, the specimens have been described as a new species, *Prasophyllum crebiflorum* (the name is derived from the Latin words for close or crowded (*creber*) and flower (*flos*) referring to the distinctive crowded flowers). *Prasophyllum crebiflorum* (Figure 1) is most closely related to *P. incorrectum* (no, that name does not require translation, it means just that and refers to the taxonomic history of the species), a species restricted to native grassland patches on the Campbell Town Golf Course.

Several species of leek orchid are listed as threatened in Tasmania and *P. crebiflorum* is also likely to qualify as threatened based on its very limited distribution. Two other species of threatened leek orchid occur in native grasslands (*Prasophyllum tunbridgense* is restricted to a few grassland sites near Tunbridge, most notably the Tunbridge Township Lagoon Nature Reserve, and *P. incorrectum* to the Campbell Town Golf Course). Several other species of orchid are restricted to grassland or grassy woodland, highlighting the conservation significance of these vegetation types. It is important to

recognise that adjacent activities (e.g. roading and harvesting) have the potential to impact on grasslands and other non-forest vegetation types (which often also contain other important values).

Leek orchids belong to a diverse group of species: there are about 30 species in Tasmania and these occur in a wide range of habitats, but most typically associated with poorly drained ground, grasslands, heathlands, sedgeland and montane vegetation types. Leek orchids get their name from the erect hollow leek-like leaf present before and during flowering (from the Greek words for leek (*prason*) and leaf (*phyllon*)). Most species are dormant over summer and autumn and begin growth in early winter. As with many orchid species, the flowering of many leek orchids is stimulated by disturbance. Large numbers of flowering plants are often produced a year after hot summer fires (but slashed tracks and road embankments are also often suitable sites).

Leek orchids are deciduous terrestrials with small, fleshy, round or oval tubers and a few fleshy, irregular roots. The flower spikes bear many dull-coloured (usually greens and browns) flowers that are held upside-down (Figure 2). The labellum (which is often prominently wavy on the margins) produces nectar (giving most species a strong fragrance), which attracts a variety of insect pollinators.

*Prasophyllum crebiflorum* was discovered on a field day (Figure 3) that followed on projects that identified conservation values and developed management plans for the montane native grasslands of northwest Tasmania. These grasslands include some of the



Figure 1: *Prasophyllum crebiflorum*, a new species of leek orchid from Westwing Plain on Surrey Hills (photo: Hans & Annie Wapstra).

Plant Biodiversity Research at the Australian National Herbarium in Canberra for identification. The plant was tentatively recognised as

# Ecology

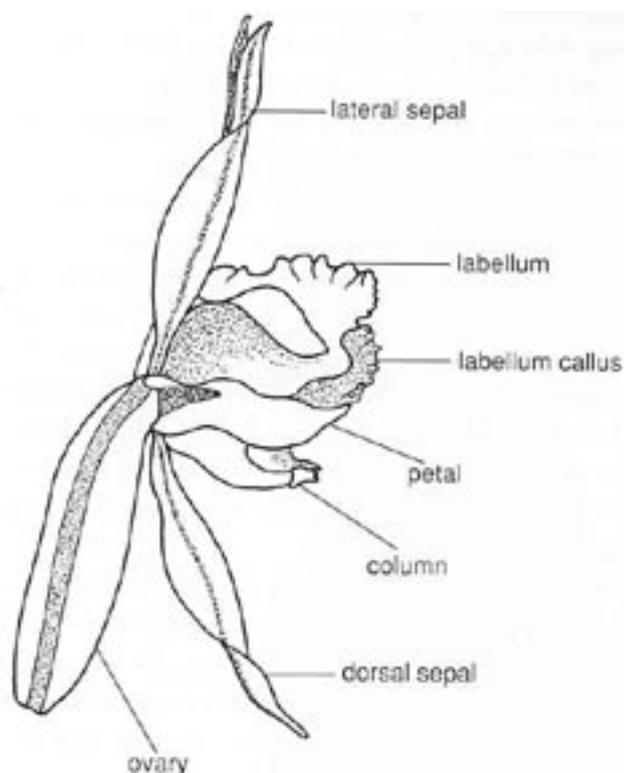


Figure 2: The structure of the leek orchid flower. The flower is actually upside-down compared to other orchid genera i.e. the column (the male and female reproductive organs) is held below the labellum (a modified petal).

different grasslands. Maintaining the integrity and composition of the grasslands is also important for the management of the threatened ptunarra brownbutterfly, which occurs on the Surrey Hills Estate.

At this stage, *Prasophyllum crebiflorum* has only been found on two of the Surrey Hills grasslands (Westwing Plain and Racecourse Plain), despite searching of several nearby areas. Perhaps the burning program recommended in the management plans (already being undertaken by Gunns Limited Burnie) will

produce conditions conducive to the establishment of more populations of this rare species.

## References

Jones, D.L. (2003). A revisionary treatment of four species of *Prasophyllum* R.Br. (Orchidaceae) loosely related to *P. correctum* D.L.Jones. *Muelleria* 18: 99-109.

## Further Reading

Craven, B. (1998). *Vegetation Management Plan for Surrey Hills Grassland Reserves Northwest Tasmania*. A Report to North Forests Burnie (a project supported by the Natural Heritage Trust, the Forest Practices Board and North Forests Burnie, and administered by the Forest Practices Board.

Jones, D., Wapstra, H., Tonelli, P. and Harris, S. (1999). *The Orchids of Tasmania*. Melbourne University Press, Carlton South, Victoria.

most extensive and important areas of native grassland in Tasmania (and probably in south eastern Australia). Most of these grasslands are on the Surrey Hills Estate owned by Gunns Limited Burnie. The projects were strongly supported by Gunns, Forestry Tasmania and the Forest Practices Board. Management plans were developed by Brooke Craven (FPB), with the assistance of Wray Watts (Gunns Limited Burnie) and covered over 25 areas of native grassland. Maintenance of the diversity of grassland areas requires active management in the form of controlled burning to reduce the cover of *Poa* tussocks to create inter-tussock space and bare ground for the establishment and regeneration of native herbs, grasses and low shrubs. Burning is conducted in sections on each grassland at 5-10 year intervals to ensure that diversity is maintained across each grassland and between



Figure 3: Participants in the field day in 1999 at Surrey Hills listen as Fred Duncan, Louise Gilfedder and Brooke Craven explain how the grasslands were surveyed.

# Ecology

## Changes to the Botany and Zoology Programs

Mark Wapstra, Senior Ecologist, Forest Practices Board

In March this year, the restructuring of the Botany and Zoology Programs (under the Research and Advisory Programs of the Forest Practices Board) was finalised with my appointment to the position of Senior Ecologist. The main purpose of this position is to coordinate the delivery of management advice on flora and fauna issues to the forest industry, coordinate the education programs for botany and zoology and the production and delivery of planning tools (such as the Threatened Fauna Adviser, planning manuals and technical notes). The Program will comprise myself and two Scientific Officers.

Sarah Munks will be continuing as Senior Zoologist on a part time basis, retaining responsibility for research, monitoring and associated education relating to fauna conservation and management in production forests in Tasmania. Sarah will also be involved in providing advice on policies, strategic planning and prescriptions relating to fauna conservation and management. Fred Duncan continues as Senior Botanist with responsibilities for policy, strategic issues and specialist advice on botanical

issues, research and training. Fred, Sarah and myself will continue to work closely together on a number of issues including policy, training and development of planning tools. Suzette Weeding has now

delivery of management advice on issues such as threatened flora and fauna, vegetation types with a high priority for conservation management and other management issues (e.g. wildlife habitat strips, wildlife habitat clumps).

I would like to take this opportunity to welcome the two new Scientific Officers to the Ecology Program: Richard Barnes (who many of you might know from his recent positions with the Private Forest Reserves Program and of course as the Tree Fern Research Officer with FPB) and Phil Bell (who many of you may know from field days on threatened fauna such as ptunarra brown butterflies and from his various

positions within DPIWE). Over the coming months I hope that the three of us can get out in the bush and meet as many of you as possible. Phil, Richard and myself can all be contacted on 62 33 7870 (phone) or 62 33 7954 (fax) or via email (e.g. mark.wapstra@fpb.tas.gov.au).



An example of the relationship between flora and fauna values: grassy *Eucalyptus globulus* forest – a forest type with high priority for conservation management due to its restricted distribution, poor reservation status and importance as foraging habitat for the endangered swift parrot (inset).

left FPB to take up the position of Forest Conservation Planner with Gunns. Karen Richards continues as Scientific Officer (Zoology) working part-time with Sarah Munks.

The restructure of the Botany and Zoology Programs has provided an opportunity to integrate the botanical and zoological aspects of the forest practices system, particularly in relation to the

# Ecology

## Holes in trees: more than just a sign of bad wood

Amelia Koch, University of Tasmania

It is surprising to me the number of times I've been directed to a piece of bush and been told it is a 'really average block'. Only to wander among the trees and find it is, to my eyes, ideal. But then I'm not looking for 'quality timber', but 'holey wood'. Or to be precise, potential habitat trees.

In Tasmania all eight bat species, the four possums, the Sugar Glider and approximately 35 bird species use hollows (i.e. holes in trees) to varying degrees. I'm trying to work out a way of picking a tree from the ground that is likely to be used by these animals. This may sound easy enough if you're working in dry forest, but if you've tried spotting holes from the ground in dense wet forest it is another matter entirely. And it is surprising the number of times you can see from the ground what looks like the 'perfect home' for some little critter, and it turns out to be a hole to nowhere. Then there are times when there really are perfect holes (or so it seems to me), yet there is nothing living in them. The plot thickens...

From similar work done in other parts of Australia, it seems that these animals are fairly choosy critters. They can choose one hole and turn their noses up at another, not just based on the obvious size of the hole, but also on which direction it faces. Animals will often prefer a warmer northerly outlook rather than the chilly view of the Antarctic. Nutrient levels can play a role, with richer soils and therefore leaf nutrient levels leading to a more satisfying menu. The abundance of wattle can also be a key tempter in the selection of a particular site. Then of course it may be the position of the hole up the tree, the type of hole, the position of the tree on the hill or a myriad of other factors influencing the selection of the

'perfect home'.

My PhD work is taking me around the state, looking at mature browntops (*Eucalyptus obliqua*) and trying to figure out what clues give away whether a certain tree on a certain coupe will actually be used by animals or not. The aim of the game is to provide some guidelines for foresters on how to choose a good habitat tree that will actually be used.

To date I've looked at a number of trees, met a number of foresters and contractors and driven a huge number of kilometres. I take a bunch of measurements before felling, such as diameter, tree shape, crown size, number of dead branches, number of potential holes that can be seen etc. Then when the trees are felled I run over the trees again looking for holes. On finding them I measure how big they are and have a search for nests, hair, scats or any other sign indicating the hole has been used. Ultimately I will work out which of the 'pre-felling' measurements are useful in choosing trees used by animals.

It is going to take a fair while for the picture to become clear, but I've already been getting some interesting tips just from talking to the guys out there in the bush. Some of the guys down in the Huon told me that possums like trees with a lean. They also say that more possums are found in myrtles and more birds in eucalypts, while bats and pygmy possums are found more often under the bark at the base of old trees than in holes. Meanwhile a mob in the Derwent said that white gums (*Eucalyptus viminalis*) are good for cockatoos



and parrots while browntops and dead trees are better for possums. In the Bass district they tell me you find more brushtail possums closer to grassland than in large areas of bush. I've also been told that you find more hollows on trees on the ridge tops than down on the slopes. I've been collecting all this information to help me with my work in trying to puzzle out what types of bush and what trees are good for animals to use. So if anyone has any further observations they'd be willing to share, I'd be very interested to hear from them.

I'll be plodding around for the next eight months or so, poking my nose here and there. So if you see a blue Subaru cruising around out in the sticks, it is probably just me out to see what's what and who's where.

# Soils

## What's happening with Class 4 Streams research

*Peter McIntosh and Karen Richards*

Since the Soil and Water Review of 1999 (Davies et al. 1999) the FPB has been actively improving the Code prescriptions for Class 4 streams, which are defined in the Forest Practices Code as streams with a catchment area of 50 ha or less. The first moves were made in the 2000 edition of the Code, which was much more specific about retaining understorey vegetation in the machinery-exclusion zones of Class 4 streams, and protecting these areas from burning, wherever possible. It also was more specific about how to manage Class 4 streams in plantations.

These prescriptions, while an improvement, were basically 'holding measures'. At the same time as the Code 2000 was published, a research project investigating pre-Code effects on upland Class 4 streams in granitic terrain was being published (Bunce et al. 2001). This study showed that disturbance of Class 4 streams was still evident 15 years after harvest. It was not possible to distinguish between effects resulting from direct disturbance such as machines crossing streams and those resulting from indirect disturbance such as increased runoff following forest harvest. This study was followed-up with a more detailed look at the effects of pre-Code forest harvest on stream morphology, the botany of riparian zones, and the effects of harvest on aquatic macroinvertebrate and platypus populations. These studies are still being written up.

Following a review of prescriptions applied to Class 4 streams (McIntosh 2001) and a review of overseas work on headwater streams (Wells 2002), the Forest Practices Advisory Council approved a trial of the 'New Guidelines for the Protection of Class 4 Streams', which began in

January 2003. The new guidelines were presented to foresters at 10 workshops throughout the state and the feedback has generally been that that foresters find the guidelines easy to implement. The new guidelines have since been slightly modified (McIntosh 2004) and the trial period has been extended. (Foresters are asked to use the 3-step process in the guidelines as presented on the FPB website (McIntosh 2004), not the summary card system circulating in some districts – this has been found to have errors.)

There remain some issues to be resolved. Chief among these are: (1) the difficulty of protecting upgraded Class 4 streams (e.g. Class 4 streams with streamside reserves) when these penetrate deeply into coupes in which regeneration fires are planned, and (2) the significant loss of area that can occur in coupes containing many streams requiring additional protection. Both issues emphasise the importance of fine-tuning the guidelines so that they are not unnecessarily restrictive, while at the same time achieving sufficient protection of stream channels and their riparian zones to reduce erosion risk, particularly in the vulnerable time immediately after forest harvest.

The scientific rationale behind the new guidelines was presented at the North American Forest Soils Conference in 2003 (McIntosh and Laffan 2003). A full paper is currently being written up for publication.

The latest initiative is a joint one between the Forest Practices Board and Rayonier. The FPB aims to assess the impact of harvest of pines on the morphology of Class 4 streams in the Mathinna region. To this end some 70 streams, some in soon-to-be-harvested pine forest,

some in 'pine controls' and some in native forest controls have been surveyed. At each site Karen Richards and Peter McIntosh have measured stream width, bank



**Figure 1.** A Class 4 stream in pine forest before (top) and after the late January rainfall event. Note the widening of the channel around the big log and the increase in the proportion of boulders in the stream channel.

height and stream bed character (percentage cover of boulders, stones, sand, silt and organics) (Figure 1). A small number of Class 3 streams have been included in the study so that the downstream effects of harvest can be gauged.

The heavy east coast rainfall in late January 2004, when 250 mm fell at Mathinna over 3 days, giving a record January rainfall of 291 mm, provided an opportunity to check the effectiveness of the measurement techniques. It also meant that we shall have to re-

# Soils

measure all 70 baseline streams, otherwise we will not be able to distinguish between the effects of the January rain and the effects of future pine harvest.

In a well-defined Class 3 stream, our measurements showed that in a standing pine forest the exceptional January rainfall increased stream width and made the stream bed much more bouldery, at the expense of sand and organic matter (Figure 2 and Table 1). Preliminary

await the outcome of the study – watch this space!

Bunce, S.E.H.; McIntosh, P.D.; Davies, P.; Cook, L.S.J. 2001. Effects of pre-Code forest clearfelling on the geomorphology and sedimentology of headwater streams in upland granite terrain, Tasmania. Proceedings of the Third Australian Stream management Conference, 27–29 August, 2001, Brisbane,

report to the Forest Practices Advisory Council. Forest Practices Board, Hobart. 93 p.

McIntosh, P.D. 2001. Review of FPB Erosion Hazard Assessments and Prescriptions (1999-2001) next to Class 4 Streams, Tasmania. Forest Practices Board, Hobart, unpublished report.

McIntosh, P.D. 2004. New guidelines for the protection of Class 4 streams. www.fpb.tas.gov.au. Updated May 2004.

McIntosh, P.D.; Laffan M.D. 2003. Soil erodibility and erosion hazard: extending these cornerstone soil conservation concepts to headwater streams in the forestry estate in Tasmania. Abstracts, North American Forest Soils Conference, Toronto, Canada, August 2003, p. 43.

Wells, F. 2002. Classification and risk assessment of headwater streams to improve stream management in the forestry estate of Tasmania. Forest Practices Board, Hobart, unpublished report.

**Table 1.** Channel measurements in a Class 4 and a Class 3 stream in a pine catchment before and after the late January 2004 rainfall event. All values are means of ten measurements (bank and width) or ten estimates of area covered (channel substrate).

Catchment size	Date	Max. Width (m)	Max. Bank Height (m)	Boulders (%)	Gravels (%)	Sand (%)	Organic (%)
25 ha	Jan 2004	2.7	0.5	20	38	11	31
	May 2004	2.8	0.6	49	50	0	1
<b>Change</b>		<b>+4%</b>	<b>+20%</b>	<b>+145%</b>	<b>+32%</b>	<b>-100%</b>	<b>-97%</b>
100 ha	Jan 2004	3.8	1.0	17	42	14	27
	May 2004	4.4	1.1	43	50	3	4
<b>Change</b>		<b>+16%</b>	<b>+10%</b>	<b>+153%</b>	<b>+19%</b>	<b>-79%</b>	<b>-85%</b>

indications were that there was no consistent effect in Class 4 streams – in some sediment movement and coarsening of the stream bed was evident (Figure 1), while in others there was no measurable change. Whether or not there are marked effects after harvest will have to

Queensland, pages 87-93. CRC for Catchment Hydrology, Melbourne.

Davies, P.E.; Hart, R.; Mitchell, C.; Wright, D.; Smethurst, P. 1999. Forest Practices Code: Review of Soil and Water Provisions. Final



**Figure 2.** Class 3 stream, looking downstream, before (left) and after the late January 2004 rainfall event. Note the increase in boulders, the size of the boulders moved, the increased channel width (all the pegs on the right bank in the upper photograph were swept away by the January flow) and the movement of large logs in the stream channel

# Noticeboard

## Forward Training Program – Forest Practices Board

Course (Contact)	Timing	Duration	Location	Course Content
Forest Botany Manuals (Fred Duncan/ Mark Wapstra)	July / August 2004	1 day	Various locations	Train FPOs in use of the new Botany Manuals
2004 Forest Practices Officer course (Chris Mitchell)	27-29 July 24-26 Aug. 28-30 Sept. 26-28 Oct.	12 days total	Orford Port Arthur Deloraine Orford	Pre-requisite course for appointment as FPO
Fauna field days	To be confirmed	1 day	Various locations	Identification and management of individual species and their habitat
Cultural heritage (Denise Gaughwin)	24 August 2004 and 21-23 Sept. 2004	4 days	Launceston (1 day) and Port Arthur (3 days)	Identification and management of Aboriginal and historic cultural heritage sites
Fauna course	September 2004	4 days	To be advised	Identification and management of Tasmanian forest dependent fauna
Forest Practices Manager training (Chris Mitchell)	Spring 2004	1 day	Hobart and Launceston	Update forest managers on requirements of the forest practices system
Forest practices training for supervisors (Chris Mitchell)	11-14 October 2004	4 days	Orford	General training in forest practices for forest industry supervisors
Forest practices training for supervisors (Chris Mitchell) <sup>1</sup>	May 2005	4 days	To be advised	General training in forest practices for forest industry supervisors

1. Course will be run jointly by Forestry Tasmania and Forest Practices Board and is dependent on demand.

## Web sightings

*A regular column on sites containing information on forest practices and management. We invite your suggestions (site address and short summary). The FPB does not necessarily endorse the content of the sites. We will try to maintain a balance of local, national and international sites.*

[www.gisparks.tas.gov.au/ThreatenedFloraCD](http://www.gisparks.tas.gov.au/ThreatenedFloraCD)

This is the online version of the Threatened Flora CD compiled by the Threatened Species Unit of DPIWE. Most of the web page is dedicated to formal listing statements and note sheets on all threatened flora in Tasmania. These provide excellent summaries of the known information on each species including taxonomy, description, habitat, distribution and management issues: These statements are in an easy-to-read format (and most have a colour image and distribution map) that is accessible to a wide audience (not just the specialist). Information is also provided on collecting guidelines and requirements. With about 485 species of our native flora (about 25-30% of our native flora) listed as threatened on the Tasmanian *Threatened Species Protection Act*, a one-stop site such will be of great use to land managers. This site will be useful to forest workers interested in getting more information on a particular species that occurs, or has potential to occur, in proposed forestry areas. Don't forget that the FPB Botany web site also has images of threatened (and non-threatened) forest flora to assist in plant identification.

## Book review

### The Nature of the Midlands

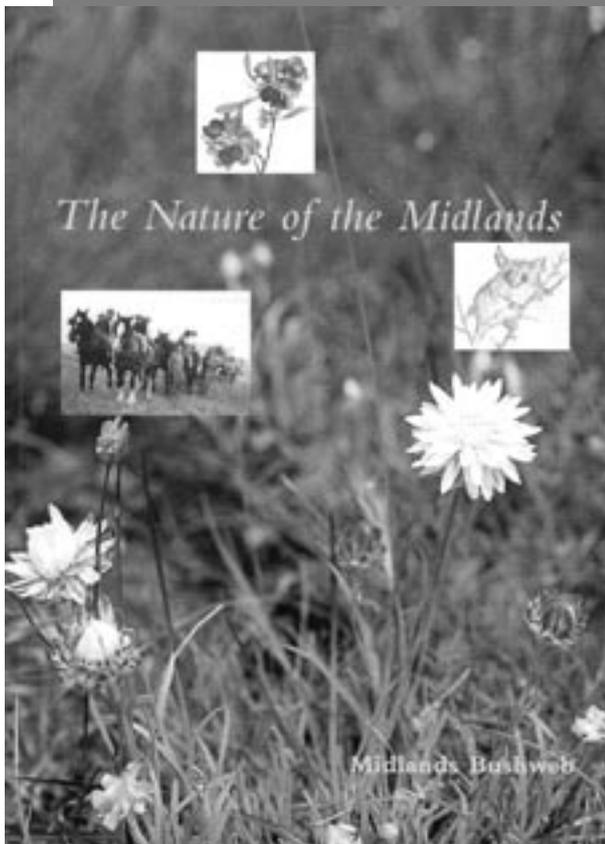
*Midlands Bushweb* (Louise Gilfedder, Jamie Kirkpatrick, Annie Wapstra, Hans Wapstra with Jo Dean)

Published by the Midlands Bushweb

ISBN 0-9750919-0-5 \$35.00

Reviewed by Brian French

*"Flatness, dead and dying eucalypts, gorse, brown pastures, salt – environmental devastation, relieved only by historic buildings and their English woodland gardens – these are the common impressions of those who first travel between Spring Hill and Launceston along the Midland Highway... The natural paradise that was the Midlands in 1800 hides now largely in its recesses, but is still there, and deserves celebration and a future" J. Kirkpatrick, opening to the Natural History section of *The Nature of the Midlands*.*



The Midlands is more complex than the barrenness that first meets the eye. Take one of the “back roads” one day instead of the Midland Highway and see for yourself the mosaic of agriculture, meandering rivers, open woodland backed by the forested hills surrounding the arable flats, and in spring, the profusion of native wildflowers on remnant roadside verges.

The Tasmanian flora has been well documented in the past with a vast array of good picture reference books. However, with the increasing complexity of issues that Forest Practices Officers have to deal with, the need for easy to use and well-produced plant identification books increases. The recently released book, *The Nature of the Midlands* is a valuable reference book for all FPO’s and anyone interested in natural history. This well produced work was initiated by the need for an easy to use reference book for landowners and conservation managers in the Midlands region of Tasmania.

*The Nature of the Midlands* is divided into sections providing an interesting background to both land use changes and the natural history of the region. Jo Dean has compiled oral histories to provide an insight into the perceived changes that have occurred in the region over the past 60 years through the eyes of long-term residents of the area. Many of the landowners and properties discussed in the book would be familiar to FPOs working in the Midlands, making it easy to relate to the personal anecdotes presented.

The natural history of the area is described excellently by Jamie Kirkpatrick. This ecological description starts 600 million years ago and looks at all of the geological and biological factors that have shaped this region into the

wonderfully diverse landscape that it is today. Jamie tells of the geology and climate of the area, and of the creation of a wide variety of soils. He tells of the Aboriginal occupation of the area, and the effect that these hunters and gatherers had on the landscape through their burning practices. He tells of two centuries of European settlement that has altered the landscape through extensive clearing for agriculture. He also looks to the future – arguing for sensible management of the natural resources of the Midlands to create “an even more productive and beautiful landscape than exists today”.

The section “Focus on the flora” will be of most value to FPO’s. This section, by Louise Gilfedder, Hans and Annie Wapstra, begins with a brief description of the vegetation communities occurring in the region. What follows is a well-laid out account of the native flora of the Midlands. Hundreds of species are depicted in high quality colour plates, accompanied by a brief description of the species, conservation status, aboriginal used plant and potential economic significance of plant species. To aid the ease of identification, plants illustrated are sorted by flower colour.

This book is valuable for all interested natural history, European history and provides an excellent reference book for plant species that commonly occur not only in the Midlands region but also for most of Tasmania’s lowland forests. This book is a very worthwhile addition to any book collection.

# Training

## Forest Practices for Supervisors course gains accreditation

*Kerry Casten, Training Program Co-ordinator and Chris Mitchell, Forest Practices Advisor*  
*The Forest Practices for Supervisors course has recently gained national accreditation as a Short Course*

The course itself is certainly not new having been developed several years ago by Forestry Tasmania and the Forest Practices Board to meet a demand for training of Forestry Tasmania employees with supervisory roles who needed to have a good understanding of forest practices but who weren't at the level of needing training for appointment as Forest Practices Officers. Many of the people completing the course undertake FPO training at a later date when they have more experience.

This year courses are being conducted in May and October, and will be attended by Forestry Tasmania and other forest industry employees. By the end of this year over 100 participants will have completed the course.

The course has been designed to be practically oriented, with the four days split roughly equally between classroom and field. Topics covered include the Forest Practices Act, the role of supervisors, workplace health and safety, the Forest Practices Code, natural and cultural

values, roading, harvesting, forest operation reports, native forest silviculture, chemical use and plantation silviculture. The course presenters are mostly experienced FPOs and specialists.

To get to the accreditation stage has required a considerable amount of behind the scenes work to prepare materials and document the course in accordance with standards set down by the accrediting bodies. The group that has developed the course includes FPO Craig Patmore of Forestry Tasmania Derwent District, Denise Colledge of TAFE Tasmania, and the writers. In addition forest industry companies such as Gunns and Rayonier, as well as Workplace Standards Tasmania and the unions, have had input and have forwarded letters of support for the course.

The benefits of having the course accredited include national recognition and portability. Participants who successfully complete the course will receive a Statement of Attainment from Forestry Tasmania as the RTO

(Registered Training Organisation) bearing the nationally recognised training logo.

We hope that the course provides participants with a sound knowledge of the practical application of the forest practices system. We are, of course, always looking at ways to improve the course and welcome feedback from participants and input from FPOs.

Behind the scenes the old Introduction to Forest Practices course previously run by Hollybank is also being reviewed for currency and updated so as to be more relevant to new employees just starting out in forestry work, either as employees of Forestry Tasmania, the forest growing companies or as employees of harvesting contractors. The new course will be ready towards the end of winter this year and will be available through Forestry Tasmania or Hollybank TAFE.

### Forest Practices Officers: are you moving?

To help us maintain an accurate database and to ensure that circulars reach you, please advise us if you are transferring, resigning or retiring. Thanks.

Adrienne, Kylie and Sheryl – phone (03) 6233 7966; email [info@fpb.tas.gov.au](mailto:info@fpb.tas.gov.au)

# Forest Practices issues

## Clearing

*Craig Hawkins, Forest Practices Advisor*

Since commencing work with the Forest Practices Board in early March this year I have been surprised by just how much work the Board undertakes with relation to forest clearing for non-traditional forestry purposes such as sub-divisions and agricultural development. Many FPOs would be unaware of this fact.

Clearing of trees came under the same planning requirements as forestry operations in 2001 following amendment to the *Forest Practices Act (1985)*. A Forest Practices Plan (FPP) is normally required for any clearing of trees (vegetation capable of reaching 5m) even if no commercial wood is produced. The only exemptions are:

- for non-vulnerable land, with the consent of the landowner, when the clearing involves less than 1ha per year or 100tonnes per year (whichever is the lesser).
- for vulnerable land, with the consent of the landowner, when the clearing is necessary to protect public safety or to maintain existing infrastructure and involves less than 5 tonnes or 1ha (whichever is the lesser).
- for powerline easements, gas pipelines and public roads

Vulnerable land is defined in the *Forest Practices Regulations (1997)* and includes:

- streamside reserves and machinery exclusion zones
- threatened species habitat
- areas with high or very high soil erodibility
- areas above the landslide threshold
- areas containing vulnerable karst soils
- areas reserved under a previous forest practices plan (eg landscape reserves)

The protection of vulnerable land is regarded as a duty of care. Unfortunately there is still a need to improve the understanding of the legislative requirements amongst

involves forest types that have been substantially cleared in the past. By using the forest practices system to plan clearing operations the appropriate checks are made



An example of illegal landclearing

the general public unfamiliar with the Forest Practices system. The Forest Practices Board is working with Local Government to improve the dissemination of information, as they are generally the first point of call for enquiries about tree clearing.

One of the areas requiring focus is that of subdivisions and clearing for urban development. Some developers and landowners have a poor understanding of their responsibilities. Even for those people that may be aware of Forest Practices Plans, there is occasionally a misconception, including amongst the contracting sector, that a plan is only required when the 100tonne or 1ha limit are to be exceeded. This is not the case when vulnerable land is involved, as described above.

Often tree clearing in urban and agricultural environments

to ensure that special values are properly considered and that the permanent forest estate requirements of the regional forest agreement are not compromised.

The Board is keen for FPOs to help spread the word about the clearing restrictions and to report any clearing operations that they suspect do not comply. While the regulations may appear a little confusing, the main thing to remember is that in most circumstances a Forest Practices Plan is required and people need to check with the Board before they commence any tree clearing work.

Craig Hawkins

Forest Practices Advisor

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03 63 834910

# Forest Practices issues

## Recent fines and prosecutions

Graham Wilkinson, Chief Forest Practices Officer

The Forest Practices Board investigated 130 cases of alleged breaches in 2003/2004. In most cases, the Board found that the allegations were unfounded or that the breaches were minor with no environmental harm. The vast majority of breaches could be attributed to human error or a lack of knowledge about the requirements of the forest practices system. Most breaches were dealt with through corrective actions, in accordance with the philosophy of the *Forest Practices Act* to 'make good' and to effect continuing improvement. Penalties were applied in eight cases as follows.

- Michael William McCullagh was fined \$2000 for illegally offering untagged tree ferns for sale. The case was heard in the Burnie Magistrates Court on 25<sup>th</sup> September 2003 where Magistrate Jones found that McCullagh had blatantly ignored advice from the Forest Practices Board and had continued to trade in tree ferns at his West Park Plants Plus premises in Burnie in contravention of the *Forest Practices Act*. The Forest Practices Board welcomed the fine, saying that it sent a strong signal to others in the tree fern industry that they must comply with the requirements of the Act. Parliament introduced tight controls on the harvesting of tree ferns in January 2000 to ensure that they were harvested on a sustainable basis. The controls only allow the harvesting of tree ferns from areas approved under forest practices plans and all ferns must be tagged before they are removed from harvesting areas and offered for sale.
- Garry John Clarke was fined \$150 by Magistrate Hill in the Devonport Court on 18<sup>th</sup> March 2004 for harvesting

firewood from a wildlife habitat strip, contrary to the provisions of a forest practices plan. The Board expressed disappointment with the low level of the fine, believing that it did not adequately reflect the community's concern about uncontrolled fire wood harvesting.

- Darren Templar was fined \$500 under s.47B of the *Forest Practices Act* for harvesting tree ferns that were not covered by the terms of a forest practices plan.
- Jadall Logging was fined \$1,000 under s.47B of the *Forest Practices Act* for harvesting trees from an area designated for landscape protection within a forest practices plan. The harvesting took place before the marking of the landscape reserve had been completed. The Board determined that logging contractors should not totally rely upon field marking, as they have a responsibility to carefully study a forest practices plan before commencing operations and they must exercise caution when operating near reserves designated within a plan. It was fortuitous in this case that a Forest Practices Officer was able to stop the harvesting and re-design the reserve boundary to avoid any long term impairment of visual values.
- Forestry Tasmania Bass District was fined \$5,000 under s.47B of the *Forest Practices Act* for failing to complete the marking of a streamside reserve, resulting in the harvesting of seven trees from the reserve. The Board found that the breach was a consequence of human error. The environmental impact was negligible but the Board believed that a penalty was

appropriate to reinforce the importance of ensuring that stream reserves are correctly marked.

- Ricky David Farrar was fined \$500 under s.47B of the *Forest Practices Act* for harvesting trees without a forest practices plan. The area involved was relatively small and Mr Farrar subsequently made proper application for a plan to complete the operation.
- Gunns Burnie was fined \$5,000 under s.47B of the *Forest Practices Act* for failing to mark a section of buffer along a boundary adjoining the Hellyer Gorge Reserve, resulting in the harvesting and clearing of forest within the buffer (but not within the Reserve). The buffer had been prescribed by the Board's Senior Botanist to protect the forest within the Reserve from exposure and the risk of myrtle wilt. Gunns in good faith had agreed to the buffer, which was correctly marked along the boundary with the exception of one section. The Board, in imposing the penalty, stressed the need for greater care to be taken in the marking of buffers and reserves.
- Forestry Tasmania Murchison District was fined \$5,000 under s.47B of the *Forest Practices Act* for failing to correctly mark the boundary of a streamside reserve, resulting in the harvesting of sections of the reserve. The Board took account of the fact that the forest understorey was very dense, making field marking very difficult. However, the Board found that the efforts to mark the boundary were not adequate and that improved practices were required.

# Forest Practices issues

## Research into sustainable soft tree-fern harvesting

Fred Duncan, Senior Botanist, Forest Practices Board

In May a project commenced within the Forest Practices Board to research options for the sustainable management of soft tree-fern (*Dicksonia antarctica*) in Tasmania.

As reported by Fred Duncan, Mark Neyland and Nina Roberts (Forest Practices News Vol 5 No 1), we know that soft tree-ferns provide important substrates for epiphytic ferns, mosses and liverworts. However, little is known of how many there are in the State, how fast they grow and what combination of site

conditions lead to the recruitment of new plants.

The attractive nature of soft tree-fern has led to a demand for them on domestic and international horticultural markets. To address harvesting issues, the industry is now regulated through the forest practices system as detailed in the "Tree Fern Management Plan for the Harvesting, Transporting or Trading of *Dicksonia antarctica* in Tasmania" (see Forest Practices News Vol 4 No 2 pg 4). Under the terms of the management

plan ferns can only be harvested through a salvage operation from forestry areas being converted to plantation, agriculture or infrastructure until better information from research is gathered to address the overall sustainability of soft tree-fern harvesting.



Figure 2. A soft tree-fern cut in half can show how much it has grown since the last fire (identified by a black line of charcoal, arrow). This soft tree-fern fell over, as evident by the distinctive 'L' shaped trunk, but survived the forestry operation and regeneration burn.



Figure 1. Croziers emerging from the top of a soft tree-fern make it an attractive garden plant when planted in a moist shady location.

plan to establish the sustainability of soft tree-fern harvesting beyond salvage operations, and to develop guidelines for managing soft tree-ferns in production forests.

Many aspects of soft tree-fern biology will be examined, including how many soft tree-ferns occur in specific forest types, their significance as habitat for flora and fauna and ability to survive and regenerate after a forestry

operation in a native forest coupe. The information gathered by the project will assist the review of the management plan.

The project is funded by the sale of soft tree-fern tags which are issued as a requirement of the *Forest Practices Act*. More information on the project and its findings will appear in future *FPN* editions. For further information on the project contact Fred Duncan.

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# Geoscience

## Pachydermal (elephant skin) weathering

*Nathan Duhig, Geoscientist, 62337716, nathan.duhig@fpb.tas.gov.au*

This small cliff is a stunning example of pachydermal weathering in sandstone on the Clifton Vale property on the Kempton 1:25 000 map sheet. Andrew Morgan of Sustainable Forest Management was preparing a FPP for this property, and notified the FPB when he came across this striking cliff. I visited the site with Andrew and Mark Wapstra. Afterwards, I contacted Chris Sharples ([www.sharples.com.au](http://www.sharples.com.au))

who studied building stones for his Masters thesis. Chris commented that the pachydermal weathering in Tasmania seems to be mainly characteristic of sandstones having a high degree of “dimensional instability” related to high clay matrix content. The presence of significant amounts of vermiculite (a clay that expands when heated) in the matrix seems to be a key player. In places adjoining sandstone beds with greater &

lesser degrees of pachydermal weathering, and beds with no pachydermal weathering were much more quartzose, those with it were finer grained with a lot of clay matrix.

This site is easy to manage by excluding it from operations, and as an overhang, may have potential as a site of aboriginal significance. This site will be nominated for listing on the Tasmanian Geoconservation Database.



This photo collage demonstrates the striking nature and range of pachydermal weathering features on this unique outcrop.