Acacia dry scrub communities in the Byadbo area of the Snowy Mountains

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(Accepted for publication 27.5.1986)

Abstract

Clayton-Greene[1], *K.A. and Wimbush*[2], *D.J. (*[1]*Horticultural Research Institute, P.O. Box 174, Ferntree Gully, Australia 3156;* [2]*CSIRO Division of Plant Industry, Canberra, Australia 2601) 1988. Acacia dry scrub communities in the Byadbo area of the Snowy Mountains. Cunninghamia 2(1): 9–24.* — Acacia dry scrubs of the Byadbo area of the Kosciusko National Park and of the adjacent Cobberas-Tingaringy and Snowy River National Parks are mapped. Descriptions of eleven representative sites reveal that the scrubs are dominated by stands of *Acacia* spp. (usually *A. silvestris*) and *Eriostemon trachyphyllus*. These scrubs are virtually restricted to outcrops of sedimentary rocks and rhyodacites. Population studies indicate that these scrubs are perpetuated by occasional intense fires.

Introduction

Closed scrub communities (*sensu* Specht, 1970) are scattered throughout the mountainous Byadbo* area, mostly east of the Snowy River, near the New South Wales–Victoria border (Figure 1), at altitudes typically between 700–1100 m. These communities, hereafter referred to as dry scrubs, are dominated by *Acacia* spp. and known locally as 'black jungle' or 'black scrubs'. The local names are derived from the dark colour and impenetrability of the scrubs contrasting with the surrounding woodland (Figure 2).

The scrubs in the Byadbo area were included by Costin (1954) in the *Acacia binervia* (*glaucescens*)–*Eriostemon trachyphyllus* alliance from the lower Maclaughlin River escarpments. However, in the Monaro region *Acacia binervia* appears to be confined to a small area of scrub near the confluence of the Snowy, Maclaughlin and Delegate Rivers, and has not yet been recorded within the Kosciusko National Park. Nevertheless, many of the other species of Costin's alliance are present in the dry scrubs of the Byadbo area. The Byadbo scrubs also parallel those of the lower Maclaughlin by having an overstorey and understorey dominated respectively by monospecific stands of *Acacia* spp. and *Eriostemon trachyphyllus*.

There is little known about the botany or ecology of these dry scrubs. Forbes, Walsh & Gullen (1982) list the species occurring at eleven sites in Victoria on rocky escarpments of the Snowy River Valley. They call the vegetation 'rocky outcrop open scrubland' and it clearly includes the type of communities described by us as dry scrub. Six of the sites described by Forbes *et al.* contained both *A. silvestris* and *E. trachyphyllus*, one contained *A. falciformis* and *E. trachyphyllus* and two contained *E. trachyphyllus* but no *Acacia* spp.

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* Although local usage refers only to the area east of the Snowy River and north of the Victorian border as the Byadbo, we have for convenience extended the area to include all that shown in Figure 1 populated by dry scrubs.

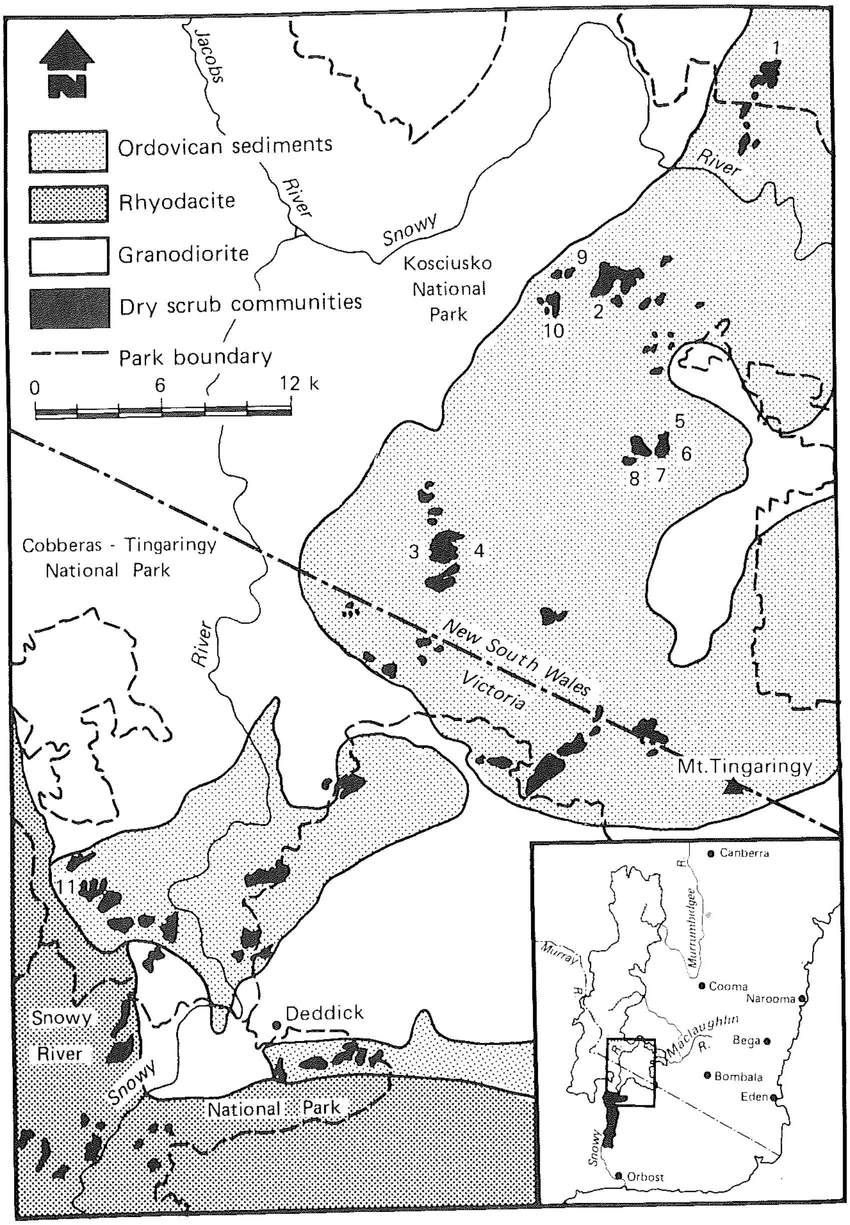

Figure 1. Distribution map of dry scrubs in the Byadbo region of the Snowy Mountains, showing their dependence on geological formation. The geology is not mapped for areas of New South Wales west of the Snowy River. Shaded areas on the inset map are, from north to south: Kosciusko National Park; existing and proposed Cobberas-Tingaringy National Park, existing and proposed Snowy River National Park.

The aim of the present study was to describe the Byadbo dry scrubs, compare them with similar scrubs elsewhere and to elucidate the processes involved in their origin and maintenance. Results would also help in formulating a management strategy for the dry scrubs of Kosciusko National Park (A. Davies, Senior Ranger, pers. comm.).

The study area

Most of the study area (Figure 1) lies within the boundary of the Kosciusko National Park (New South Wales) and the adjacent Cobberas-Tingaringy and Snowy River National Parks (Victoria). Since being explored by Robinson in 1844 (Mackaness, 1941), the area has had a history of cattle grazing, burning, and severe rabbit infestation (Costin, 1954; Clayton-Greene, 1977). Feral horses are also common, and a small feral goat population has persisted in one locality but has not increased. In recent years a system of ridgetop four-wheel drive access tracks has been established.

Climate

The entire study area is in a rain shadow protected from nearly all quarters by high mountains: the Wulgulmerang Tableland and Stradbroke Range in the south-west, the Great Dividing Range to the west and north-west, and areas of extensive upland in the south (for example Mount Tingaringy), south-east and east. Most rainfall comes from easterly airstreams which bring in moist air from the Tasman Sea.

Climatic data for the area are sparse due to the lack of settlement. Mean annual rainfall decreases in a north-easterly direction and much of the area receives around 600 mm per annum (Costin, 1954). There is a slight summer rainfall maximum, for example at Deddick (Figure 1), 67% of annual rainfall occurs between October and March.

Costin (*loc. cit.*) estimated a mean monthly temperature of 21°C in midsummer and 4°C in midwinter for areas occupied by the *A. binervia–E. trachyphyllus* alliance, and these would be comparable to the Byadbo dry scrub areas. Light snowfalls occur, but the snow does not persist. Ground frosts are common in winter, but would be less severe on the higher areas occupied by dry scrubs than on the valley floors. In summer, temperatures on the north-western aspects may reach the high thirties.

Topography, Geology and Soils

Dry scrubs occur on steep and often rocky slopes and are virtually restricted to the large areas of Upper Ordovician siltstones, schists, slates, shales and claystones which extend in a broad belt from north-east to south-west across the area (Figure 1). In the southern part, dry scrubs also occur on Lower Devonian rhyodacites. Only two small scrubs have been mapped from aerial photographs on the coarser-grained granite or granodiorite. However, because of their inaccessibility this has not been field verified. These two scrubs are adjacent to areas of rhyodacite (Figure 1) and it is possible that they are on outliers. Soils were classified by Costin (1954) as lithosols, grey-brown podzolics and colluvial brown earths.

Vegetation of the Byadbo area

The vegetation throughout the area where these dry scrubs occur is a mosaic of woodland and open-forest communities (*sensu* Specht, 1970). Below 600 m elevation, in the Snowy River valley, *Callitris columellaris* and *Eucalyptus albens* form a woodland, with the latter usually extending to altitudes well above the *C. columellaris.* Above 600–700 m, especially on southerly aspects and at lower elevations along water courses, *E. melliodora* and *E. bridgesiana* form woodlands. On the more exposed north- and west-facing slopes, above the *E. albens* communities, *E. goniocalyx* is perhaps the most widespread species with *E. nortonii*, *E. dives*, and *E. macrorhyncha* also common. The latter is particularly common on the patches of shale which occur throughout the region. Open-forest of *E. viminalis*, *E. rubida* and *E. mannifera* subsp. *maculosa* occurs on more sheltered east- and south-facing slopes. On the higher peaks, *E. pauciflora* subsp. *pauciflora*, *E. dalrympleana* and *E. radiata* form open-forest and tall open-forest.

Within these communities the dry scrubs form discrete patches, usually on north- and west-facing aspects, with abrupt boundaries between them and adjacent communities. The upper boundary often coincides with the crest of a ridge. When viewed from above, the outline of dry scrubs is very reminiscent of the pattern of burn produced by wildfires (Figures 1, 2).

Site descriptions

The canopy species that was dominant in both size and number in nine of the eleven dry scrubs was *Acacia silvestris.* In some scrubs there were scattered emergent *Exocarpos cupressiformis.* Depauperate *Eucalyptus nortonii*, *E. albens*, *E. melliodora* and *E. macrorhyncha* occurred singly or in combination both within and emergent above the canopy. *Eriostemon trachyphyllus* was common (usually the main species) in the understorey of every scrub site visited. *Olearia phlogopappa* was also common in the understorey.

Where the canopy of *A. silvestris* was more open, as in older scrubs or near the scrub–woodland boundary there were often shrubs of *Phebalium lamprophyllum*, *Platysace lanceolata*, *Helichrysum conditum*, *H. obcordatum*, *Polyscias* sp. and *Olearia iodochroa. Cassytha glabella* often formed a dense tangle over the smaller trees and shrubs. Herbaceous ground cover was minimal in all the scrubs visited.

Only two of the eleven scrubs examined (sites 9 and 10, Figure 2) did not contain *A. silvestris* (Table 1). At site 9 the only *Acacia* species present was *A. kettlewelliae* which is widespread in the region, particularly around other scrubs and on outcrops of shale. Together with *Eriostemon trachyphyllus* and *Daviesia mimosoides*, this species formed a discontinuous shrub layer about 3 m tall. Beneath this was an almost continuous stratum of shrubs of various species, including *Platysace lanceolata*, *Dodonaea viscosa*, *Phebalium lamprophyllum* and *Prostanthera phylicifolia.* The latter species has not been recorded elsewhere in the Byadbo area except in heaths on Mt Tingaringy (Figure 1). Small trees of *Exocarpos cupressiformis* and *Eucalyptus melliodora*, the latter showing extensive defoliation and vertical splits in the bark, were scattered emergents. At site 9 both root suckering and seedling growth of *Eriostemon trachyphyllus* were observed and there were many seedlings of *A. kettlewelliae.*

At site 10 the dominant species was *A. falciformis* growing as a small tree up to 8 m in height and forming an open canopy above a dense understorey of large old shrubs of *E. trachyphyllus* and scattered *O. phlogopappa. Callistemon pallidus* was growing on rock outcrops within this scrub. On adjacent slopes *A. falciformis* formed a continuous canopy with very little understorey and the rockiest sites were occupied by *Allocasuarina verticillata.*

At site 2 on areas of outcropping rock there were patches of tall *Acacia doratoxylon* within the typical *A. silvestris* canopy.

Table 1: General site data

Site Location No.	1:100 000 grid ref.	Slope (Deg.)	Aspect	Dominant *Acacia* species
1 Paupong	8626 509351	20	NW	*A. silvestris*
2 Black Jack	8626 427281	26	NW	*A. silvestris– A. doratoxylon*
3 Monument (a)	8626 351156	26	NE	*A. silvestris*
4 Monument (b)	8626 358158	16	W	*A. silvestris*
5 Merambago (a)	8626 462207	19	NW	*A. silvestris*
6 Merambago (b)	8626 457204	20	ENE	*A. silvestris*
7 Merambago (c)	8626 451204	20	NNE	*A. silvestris*
8 Merambago (d)	8626 449205	28	N	*A. silvestris*
9 Slaughter-house (a)	8626 417292	21	NW	*A. kettlewelliae*
10 Slaughter-house (b)	8626 408277	27	NW	*A. falciformis*
11 Wulgulmerang	8523 182995	15	NW	*A. silvestris*

The general appearance of most of the *Acacia* stands in these dry scrubs was one of uniformity, with closed canopies and stems of similar height and size. Closer examination showed that though most stems were of a similar height, there was a range of stem diameters, with occasional individuals much larger than the rest. These larger individuals were often near the periphery of the scrub. Sometimes there were several stands within a scrub, each of relatively uniform structure but clearly distinguishable from each other (Figure 3). All of the scrubs except that at site 9 showed signs of having been burnt (for example butt scars, charcoal, and standing dead trunks, especially of eucalypts).

Methods

The distribution of dry scrubs throughout the Byadbo area was mapped by plotting from aerial photographs onto 1:100 000 maps (Figure 1). During the field work a further two small scrubs were located which were not apparent on aerial photographs. Seventy-three scrubs are thus mapped in Figure 1; however, because access was difficult only eleven were visited (Figure 1 and Table 1), although several more were observed from ground vantage points and helicopter using high-powered binoculars. This enabled a confident identification of the major canopy species (*A. silvestris*).

Stand structure and dynamics were investigated at sites 2–8 (Figure 1, Table 1), using belt transects 2 m wide and 10 m, 25 m or 100 m long, depending on stand density, shorter transects being used in high densities. Within each transect stem density and diameter at height 0.2 m for both living and dead stems of *A. silvestris* and *E. trachyphyllus* were recorded. At sites 2–5, 7, 8 and 11, cross-sections of stems from the main scrub species were taken for ring counting. Those from site 8 were also checked in the Tasmanian Regional Laboratory of CSIRO Division of Forest Research.

At site 1 a line of 5 circular permanent plots each of 0.01 ha was established in May 1975. The centres of the plots were marked by steel posts spaced 25 m apart. All individual trees and shrubs (both live and dead) were counted in three height classes. Measurements were repeated in September 1982.

Figure 2. Oblique aerial photograph of *Acacia silvestris–Eriostemon trachyphyllus* dry scrubs at Byadbo, showing their fine texture and dark colour contrasting with the surrounding woodland.

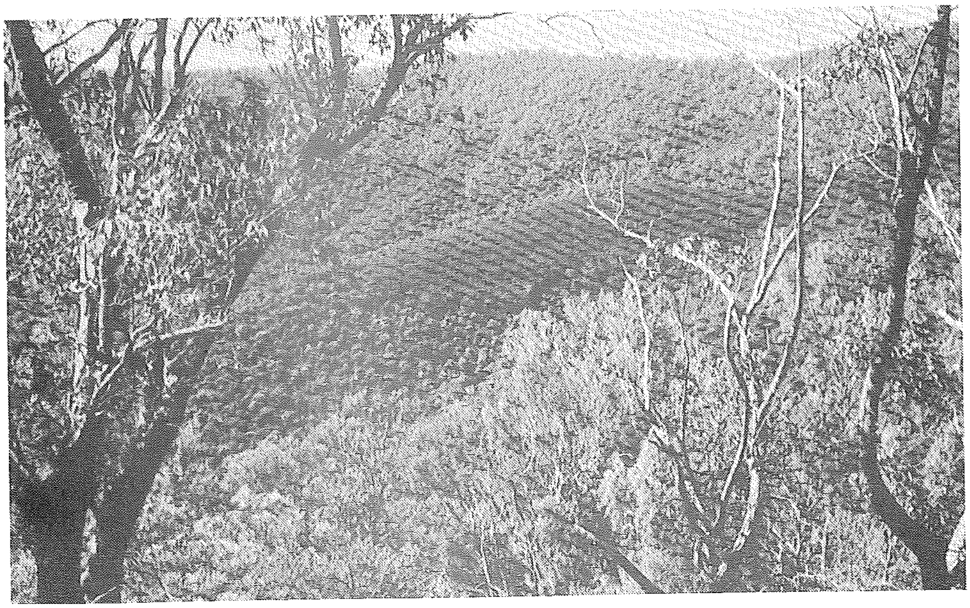

Figure 3. A view looking east over site 3 (obscured) and onto site 4 (cf. Figure 2) which was located near the upper edge of the denser patch of scrub near the centre of the photograph. Immediately below and to the left of this patch is the much older stand which includes site 3, in which the canopies are, unlike the younger ones, rounded in shape and in blossom. The vegetation in the foreground and background is mainly woodland of *Eucalyptus goniocalyx*.

Discussion

It is clear from Figure 1 and field survey that within the Byadbo region the occurrence of these scrubs is related to lithology and aspect. Scrubs are predominantly found on north or north-west aspects and only two appear to occur on the coarse-grained soils derived from granodiorite. Another striking feature is the abrupt boundary between scrub and surrounding woodland (Figures 2, 5), there being virtually no ecotone.

Soil type, angle of slope and aspect do not appear to be critical in determining the lateral or lower boundaries of these scrubs. The boundaries often extended diagonally across slopes uniform in these attributes. However, upper boundaries normally coincided with a ridge crest. Only on a few wetter slopes with an easterly aspect (for example near site 3) were there mixtures of scrub and woodland species. A few small seedlings of *A. silvestris* were seen growing among *Chionochloa pallida* tussocks in woodland bordering the scrub. Similarly on the rocky summits of the Ballantyne Hills in the higher rainfall area near the Stradbroke Range, *Eriostemon trachyphyllus, Phebalium lamprophyllum, Dodonaea viscosa* and other typical scrub species form an understorey beneath an open canopy of *Eucalyptus dives* and *E. rubida.* In this community *A. silvestris* is absent.

Within each scrub the population is either approximately even-aged (for example site 8) or discontinuous with large gaps between ages (for example site 2). An occasional instance of suckering was observed, however most regeneration had clearly been from seed. At all sites there were few if any seedlings. The permanent plots also show no evidence of further recruitment by the main canopy species after initial establishment (Table 4). It is thus evident that each population originated from an event that killed most of the standing vegetation and resulted in seed of both *Acacia* and *Eriostemon* germinating in large numbers.

Though it is possible that the rare extreme drought or intensely cold interval could kill large areas of scrub, these would be unlikely to produce the clear boundaries that are evident between discrete stands of different ages within the one scrub (for example Figure 3). Nearly all sites had abundant evidence of fire and it seems that fire is the likely instrument of regeneration. Evidence for intense fire as the main agent of regeneration also comes from the distribution of the scrubs, the large number of dead and often fire-scarred trees, dead spars, butt-scars on older live trees and the fire history, gleaned from both local knowledge and aerial photographs.

According to local knowledge (J. Rogers pers. comm.), wildfires were widespread in the region in February 1952 and burnt site 11. Ring counts of *A. silvestris* are in accordance with this date although those of *E. trachyphyllus* may indicate a more recent fire. Similarly at site 8 the occurrence of a fire around 1964 is shown on aerial photographs and the ring counts show close agreement. Examination of the ring counts from the other sites indicates that the scrubs at sites 2 and 7 and possibly 4 and 6 also arose after the 1952 fires. Sites 3 and 5 appear to date from an earlier fire. Although the sample size is very small, two episodes of destruction are indicated at site 4 (Table 3 and Figure 3) at 30 and possibly 50 years B.P.

It is reported (J. Rogers, pers. comm.) that under extreme conditions of high temperature and strong wind, fire moves rapidly through the scrubs, but at other times they can be very difficult to burn (Forestry Commission of New South Wales, 1983). Several instances were noted where recent low intensity fires in the surrounding woodland had burnt to the edge of a scrub but failed to penetrate. On one occasion, aerial incendiaries were dropped into scrubs during control burning operations without any resulting ignition. The scrubs will evidently only ignite under hot dry windy conditions, and the fire intensity would then probably be increased by the high oil content of the living *Eriostemon* leaves and other Rutaceous plants.

Reasons for the failure of low-intensity fires to penetrate the scrub can only be speculative. These could include a dense closed canopy, lack of ground vegetation and only a moderate flammability of dead *Acacia* leaves. King & Vines (1969) reported that dried leaves of two other species of *Acacia* (*A. longifolia* var. *sophorae* and *A. maidenii*) were in the mid-range of flammability of species tested due to a relatively high total mineral content. In the dry Byadbo environment, *Acacia* litter is likely to be only slowly mineralized, thus retaining its low flammability.

Only site 9 showed no evidence of fire. This site differed from the other scrubs in being dominated by *A. kettlewelliae*, and there was a continual though sparse regeneration of the *Acacia* and other species. Site 9 was a particularly harsh site with the vegetation showing signs of frequent moisture stress. This vegetation may be an arrested succession due to frequent plant death from drought.

Site quality has a marked effect on the form of these scrubs and this is illustrated by comparing site 2 with site 7 where differences in tree size do not indicate different ages. Both have vegetation of similar age (Table 3), although their size class distributions are quite different (Figure 4). At site 7, where soil, slope and aspect are more favourable, the closed canopy is approximately 6 m in height. Stems are densely packed with the majority being 10–30 mm in diameter. Site 2 is more rocky, with skeletal soils, a steeper slope and more exposed aspect: *Acacia silvestris* is only 4 m tall, with a density <30% and a basal area <65% of those at site 7. However most stems are 30–60 mm in diameter (Figure 4), giving an impression of greater age. At site 2, due to large areas of exposed rock, seedling establishment is restricted to fewer sites. There may also be more soil moisture available at site 2 due to less transpiration. Krause & Kummerow (1977) found that chaparral vegetation in California developed greater moisture stress on a shaded slope than on an adjacent exposed slope. This was attributed to the greater amount of transpiring leaf surface area on the shaded slope. Thus although the overall environment of site 2 is harsher than site 7 individual trees may experience more favourable conditions for growth.

The fate of these scrubs if left unburnt is uncertain and the reasons for their original development can only be speculative. The data from the permanent plots (Table 4) and population structures (Figure 4) suggest that over time *E. trachyphyllus* and particularly *A. silvestris* would decline or disappear (the vegetation on the summits of the Ballantyne Hills may represent such a later seral stage).

A further striking feature of the Byadbo area is that both *A. silvestris* and *E. trachyphyllus* rarely occur in the surrounding woodland. This contrasts with *A. kettlewelliae* and *A. falciformis* which also form scrubs on sites similar to those occupied by *A. silvestris* but are common elsewhere in the area. *A. doratoxylon*, the other scrub-forming species, typically occurs on rock outcrops when not in scrubs.

Near the southern coast of New South Wales, 120 km ENE of the Byadbo area, there is another dry scrub dominated by *A. silvestris* and *E. trachyphyllus*. It is located on a west-facing slope above the Brogo River 3 km west of Mumbulla Mountain, at only 100 m above sea level. The climate is considerably warmer and wetter (875 mm rainfall per annum at Bega) than that of the Byadbo area.

In a recent Environmental Impact Statement (Forestry Commission of New South Wales, 1983), *A. silvestris* is described as being 'reasonably well distributed in Wandella State Forest right to the edge of the tableland . . . but only occasionally forms (these) thickets which exclude all but an occasional eucalypt emergent'. A map shows areas where *A. silvestris* canopy cover is 80% or more, and these are nearly all on north- or west-facing slopes and all on Ordovician metasediments. A comment is made that the 'species . . . is generally too moist to be burnt in hazard reduction burning operations'.

No mention is made in the document of *Eriostemon trachyphyllus* except in the general species list, but in the Silvestris Forest Preserve nearer Narooma it forms a dense understorey beneath small trees of *A. silvestris* (up to 15 m tall) and scattered eucalypts (up to 24 m tall). Similar scrubs have been reported in the Upper Brogo River catchment (M. Parris, Ben Boyd National Park Advisory Committee, pers. comm.), and the *A. binervia–E. trachyphyllus* dry scrub reported by Costin (1954) is located on the lower Maclaughlin River in a habitat intermediate to those on the Snowy and Brogo Rivers. All these scrubs are located on metasediments. The wide range of climate that the scrubs tolerate suggests that climate is not a major factor; soil type and fire regime remain the most likely influences controlling their present distribution.

Closer to the coast, *A. silvestris* is a common species of forest communities and it could be postulated that a dry scrub may develop on a dry slope with skeletal soils in response to frequent hot fires. If this frequency were too high to allow eucalypt regeneration, but not too high to prevent *Acacia* reproducing from seed, the seedlings of the latter may crowd out all other species. Indeed the lower Brogo River scrub was reported to have appeared after an intense wildfire, replacing forest (D. Christopher, New South Wales Forestry Commission, pers. comm.). It is not known whether this fire was the last of a series.

The absence of *A. silvestris* from surrounding vegetation in the Byadbo area suggests that the scrubs have been in existence for a long period. Furthermore, if the Byadbo scrubs had a similar origin to those in other localities, this suggests a much moister climate than exists at present.

Scrubs dominated by *A. silvestris* appear to be much more common and widespread than those dominated by *A. binervia*. It would thus be appropriate to place the *A. binervia–E. trachyphyllus* alliance of Costin (1954) in an association under a new *A. silvestris–E. trachyphyllus* alliance.

Conclusion

The Plan of Management for Kosciusko National Park (1982) includes the 'black scrubs' under 'Outstanding Natural Resources' and lists their protection as an objective of management (Section 1.3.3 of the Plan of Management).

The word 'protection' has many connotations, but if the objective is to maintain scrubs in a variety of age classes, then the plan should recognize that the natural cycle of regeneration of the scrubs almost certainly includes intense fire. It would appear that the only conceivable threat to the continued existence of the scrubs may come from attempts to exclude intense fire by too-frequent low-intensity burns in the surrounding woodland.

We suggest that a more appropriate name for the *Acacia binervia* (*glaucescens*)–*Eriostemon trachyphyllus* alliance of Costin (1954) would be the *A. silvestris–E. trachyphyllus* alliance. *A. silvestris–E. trachyphyllus, A. binervia–E. trachyphyllus, A. falciformis–E. trachyphyllus* and *A. kettlewelliae–E. trachyphyllus* would be associations within the alliance.

Acknowledgments

The authors wish to thank the members of the Monaro Conservation Society who assisted with the early ground surveys. A special debt is owed to Margaret Parris, who also gathered data on the coastal scrubs, added to the species list and criticized the manuscript. Others who made helpful comments were Drs A.B. Costin, J.H. Leigh, and A.M. Gill and Mr A. Slee. Dr J. Banks checked the ring counts. We are grateful to Mr Trevor Bird of CSIRO Division of Forest Research for examining several stem sections, and estimating their ages. Thanks are also due to Ms Tanya Clayton who prepared the figures and to Ms Susan Kelo who typed the manuscript. The Department of Agriculture, Victoria, made time available, and the staff of the Kosciusko National Park, particularly A. Davies and P. and C. Shady gave valuable assistance in the field. The National Parks and Wildlife Service of New South Wales also provided a helicopter from which Figure 2 was photographed.

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Appendix 1

List of species collected in and around the Byadbo dry scrubs

Species	Within scrubs	Ecotone	Surrounding woodland
PTERIDOPHYTA			
Aspleniaceae			
Asplenium flabellifolium Cav.			X
Pteridaceae			
Cheilanthes tenuifolia Sw.	X	X	X
GYMNOSPERMAE			
Cupressaceae			
Callitris endlicheri (Parl.) F. M. Bailey			X
ANGIOSPERMAE-DICOTYLEDONEAE			
Casuarinaceae			
Allocasuarina verticillata (Lam.) L. Johnson (syn. *Casuarina stricta* Dryand.).	X		
Proteaceae			
Banksia marginata Cav.			X
Persoonia silvatica L. Johnson			X
Santalaceae			
Exocarpos cupressiformis Labill.	X		
Loranthaceae			
Amyema quandang (Lindl.) Tiegh.	X		
Polygonaceae			
Muehlenbeckia diclina (F. Muell.) Druce		X	
Chenopodiaceae			
Einadia hastata (R. Br.) A.J. Scott	X	X	X
Lauraceae			
Cassytha melantha R. Br.	X		
Ranunculaceae			
Clematis microphylla DC.			X
Mimosaceae			
Acacia dealbata Link		X	X
A. deanei (R.T. Baker) Welch *et al.* subsp. *paucijuga* Tind.			X
A. doratoxylon A. Cunn.	X		X
A. falciformis DC.	X	X	X
A. implexa Benth.	X		X
A. kettlewelliae Maiden	X	X	X
A. mearnsii De Wild.		X	X
A. silvestris Tind.	X		
Fabaceae			
Bossiaea buxifolia A. Cunn.			X
Daviesia mimosoides R.Br.	X		X
Glycine clandestina Wendl.			X
Indigofera australis Willd.		X	X
Oxylobium procumbens F. Muell.			X
Pultenaea procumbens A. Cunn.			X
P. juniperina Labill. var. *planifolia* H.B. Williamson			X
Rutaceae			
Crowea exalata F. Muell.		X	X
Eriostemon trachyphyllus F. Muell.	X		
Phebalium lamprophyllum (F. Muell.) Benth.	X	X	
Zieria cytisoides Sm.			X
Sapindaceae			
Dodonaea viscosa Jacq. subsp. *cuneata* J.G. West			X
D. viscosa Jacq. subsp. *spatulata* J.G. West	X	X	X
D. viscosa Jacq. subsp. *cuneata* J.G. West X subsp. *angustissima* J.G. West		X	

Species	Within scrubs	Ecotone	Surrounding woodland
Rhamnaceae			
Cryptandra amara Sm.			X
Pomaderris angustifolia N.A. Wakefield			X
P. ledifolia A. Cunn.			X
P. pallida N.A. Wakefield			X
Myrtaceae			
Callistemon pallidus (Bonpl.) DC.	X		
Eucalyptus albens Benth.	X		X
E. bridgesiana F. Muell.		X	X
E. dives Schau.	X	X	X
E. nortonii (Blakely) L. Johnson	X	X	X
E. macrorhyncha F. Muell. ex Benth.	X	X	X
E. melliodora A. Cunn. ex Schau.		X	X
E. viminalis Labill.		X	X
Leptospermum phylicoides (A. Cunn. ex Schau.) Cheel		X	
Araliaceae			
Polyscias sp. aff. *sambucifolia*	X	X	X
Apiaceae			
Platysace lanceolata (Labill.) Norman		X	
Epacridaceae			
Astroloma humifusum (Cav.) R.Br.			X
Lissanthe strigosa (Sm.) R.Br.		X	X
Melichrus urceolatus R.Br.			X
Monotoca scoparia (Sm.) R.Br.			X
Lamiaceae			
Prostanthera phylicifolia F. Muell.	X		
P. rotundifolia R.Br.			X
Solanaceae			
Solanum linearifolium I.I. Herasimenko		X	X
Goodeniaceae			
Goodenia ovata Sm.	X		X
Asteraceae			
Brachycome rigidula (DC.) G.L. Davis			X
Cassinia aculeata (Labill.) R.Br.			X
C. longifolia R.Br.			X
Cymbonotus sp.	X		X
Helichrysum conditum N.A. Wakefield		X	X
H. obcordatum (DC.) Benth.	X	X	
Olearia iodochroa (F. Muell.) F. Muell. ex Benth.	X	X	
O. phlogopappa (Labill.) DC.	X	X	X
Senecio hispidulus A. Rich.			X
MONOCOTYLEDONEAE			
Poaceae			
Bothriochloa macra (Steud.) S.T. Blake	X		
Chionochloa pallida (R.Br.) S.W.L. Jacobs	X	X	X
Xanthorrhoeaceae			
Xanthorrhoea australis R.Br.			X
Orchidaceae			
Diuris sulphurea R.Br.			X