

Notes on the distribution and conservation status of some restricted plant species from sandstone environments of the upper Hunter Valley, New South Wales

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As a consequence of vegetation survey carried out in sandstone environments of the upper Hunter Valley over recent years, a number of new populations of significant plant species have been recorded. The opportunity is taken here to document some of these finds, and also to suggest some revisions to the current conservation risk codes. Twenty-three species are discussed; *Acacia bulgaensis*, *Angophora euryphylla*, *Callitris rhomboidea*, *Banksia penicillata*, *Cynanchum elegans*, *Eucalyptus aenea*, *Eucalyptus dealbata*, *Eucalyptus fergusonii* subsp. *dorsiventralis*, *Eucalyptus nubila*, *Eucalyptus prominula*, *Gonocarpus longifolius*, *Grevillea johnsonii*, *Grevillea montana*, *Melaleuca groveana*, *Pomaderris bodalla*, *Pomaderris brunnea*, *Pomaderris precaria*, *Pomaderris queenslandica*, *Pomaderris reperta*, *Pomaderris sericea*, *Prostanthera cryptandroides* subsp. *cryptandroides*, *Prostanthera hindii*, and *Rulingia procumbens*. Voucher specimens have been lodged for new populations of all taxa (except some populations of *Cynanchum elegans*) at State herbaria.

Introduction

Over recent years, vegetation survey in sandstone environments of the upper Hunter Valley in central eastern New South Wales has resulted in several new records of significant taxa. In some cases, these new records allow for the revision of current conservation risk codes, while others extend the known range or reserve representation of certain species. All taxa are considered to be regionally significant in the Hunter Valley. This note briefly details these taxa in terms of the conservation codes applied through the Briggs and Leigh (1996) system. Similar notes have recently been published in regard to plant species in north-eastern New South Wales (Richards & Hunter 1997, Copeland & Hunter 1999). As with the earlier notes, publication of the current status of significant plants from specific regions is considered beneficial when management decisions require the most up-to-date distributional data available.

For all species detailed here (with the exception of some populations of *Cynanchum elegans*), voucher specimens have been lodged at the National Herbarium of NSW, National Herbarium of Victoria, or the Australian National Herbarium. The very small size of some *Cynanchum elegans* populations has deterred collection of herbarium material, but all new locations noted here have been confirmed in the field by recognised experts. Throughout this paper, the upper Hunter Valley refers to the

catchment of the Hunter River, as far east as the Singleton area. National Parks have been abbreviated NP, State Recreation Areas SRA, Nature Reserves NR, and State Forests SF. All but four of the species dealt with are currently listed as nationally rare (Briggs & Leigh 1996), or are listed on the *NSW Threatened Species Conservation Act 1995* as Endangered or Vulnerable in New South Wales. The four unlisted species are included as they are considered by the author to be regionally significant in the upper Hunter Valley, primarily due to sizeable range extensions. All four are canopy species; a future note is planned that will summarise regionally significant taxa for the Hunter Region.

Rare or threatened species dealt with in this paper have been discussed in relation to their specific conservation risk codes (Briggs & Leigh 1996). These codes effectively summarise the perceived level of threat for each species. Under this system, the first character is a distributional category, and refers to plant taxa known only from the type location (1), or with a distributional range of less than 100 km (2), or with a range of more than 100 km (3). The second character rates each taxon on conservation status, either as Presumed Extinct (X, not collected or verified in the preceding 50 years), Endangered (E, in serious risk of disappearing from the wild within 10–20 years), Vulnerable (V, taxon not presently Endangered, but at risk over 20–50 years), Rare (R, rare in Australia but without any identifiable threat), or Poorly Known (K, taxon suspected of belonging to one of the preceding categories, but field information is inadequate). The third character (if present) outlines reservation status, generally as Reserved (C, if taxon has at least one population in a national park or other proclaimed conservation reserve). In reference to Reserved populations, these can be Adequate (a, 1000 plants or more known from reserve), Inadequate (i, less than 1000 plants known from reserve), Not Known (-, the reserved population size is unknown), and/or total known population reserved (t).

1. *Acacia bulgaensis* Tind. & S.J. Davies (Fabaceae: Mimosoideae)

Tindale, Kodala & Davies (1992) described *Acacia bulgaensis* as common in the vicinity of Bulga, Milbrodale and Broke on the edge of the sandstone escarpment south of Singleton. Subsequent to this work, extensive survey of the adjacent Yengo NP has revealed substantial populations of this species (Bell, Vollmer & Gellie 1993, Maryott-Brown & Wilks 1993), which suggests a revision of the ROTAP code of 2RC- applied by Briggs and Leigh (1996) can be made. Indeed, Maryott-Brown and Wilks (1993) state that all sites visited during their survey had large population levels (greater than 1000 plants). Bell (1998) also reports the species for the north-eastern section of Wollemi NP, where it adjoins Yengo NP, while Binns (1996) notes this species as common in a portion of Pokolbin SF excluded from logging.

All populations combined are expected to well exceed 1000 plants, and hence the current ROTAP code of 2RC- should be amended to 2RCa, to reflect the reserved population. The coding for this species in zone 56 should also be amended to 56Ca (Yengo NP).

2. *Angophora euryphylla* (L. Johnson ex G. Leach) L. Johnson & K. Hill (Myrtaceae)

Regarded previously as occurring on sandstone outcrops in a small area between Putty and Wollombi, and south along the Judge Dowling Range (Hill 1991a), *Angophora euryphylla* is now known to occur as far west as the Martindale Range in Wollemi NP (Bell 1997a), with an apparently disjunct occurrence in a coastal location in Brisbane Water National Park near Gosford (Bell & Williams 1996). Sizeable populations also exist within Yengo NP, and Pokolbin and Corrabare SFs (Bell et al. 1993, Binns 1996). The records from Wollemi NP extend the known range into the Central Western Slopes botanical division, while those from Pokolbin SF extend the range into the North Coast botanical division. This species is not currently listed as rare, but is considered of regional significance in the Hunter Region due to its sporadic distribution.

3. *Callitris rhomboidea* R. Br. ex A. Rich. & Rich. (Cupressaceae)

Formerly known only from the Coast and Tablelands in New South Wales (Harden & Thompson 1990), *Callitris rhomboidea* has recently been collected from the middle Lee Creek catchment in north-western Wollemi NP (pers. obs. 1998), and represents the first record for the Central Western Slopes botanical division. In this area, plants were scattered in and near scrubby heath on sandstone pagoda rock formations. This species is not listed as rare, although it is considered regionally significant in the Hunter Region.

4. *Banksia penicillata* (A.S. George) K.R. Thiele (Proteaceae)

Previously reported to occur only in dry sclerophyll woodland on sandstone or around rocky slopes in the Blue Mountains area of the Central Tablelands (Harden 1991), recent collections have extended the range of this species into the Central Western Slopes botanical division. Within Wollemi NP, small populations of this species were recorded as far north as Benjang Gap and the middle Lee Creek catchment south of Bylong in the northwest of the Park (Bell 1998). More recently, additional populations have been recorded in remote parts of the Park immediately west of the Tollagong Range, in close proximity to the Central Coast division (pers. obs. 1998). With other known populations further south in Wollemi (Bell 1998), and possibly also in Blue Mountains and Gardens of Stone NPs, it is likely that there are more than 1000 plants currently in reserve. It is suggested that the current ROTAP code of 3RC- (Briggs & Leigh 1996, as part of *Banksia conferta*) may now be revised to 3RCa to reflect these additional populations. The New South Wales listings should also be amended to include 51C- (Wollemi NP).

5. *Cynanchum elegans* (Benth.) Domin (Asclepiadaceae)

Copeland & Hunter (1999) have recently summarised recent recordings of this species, and suggested that a ROTAP code of 3VCi is more appropriate than the existing one of 3ECi. They base their suggestion on the large number of new populations both in conservation reserves, and in other areas. While this amendment to the conservation risk code appears partly justified, it must be remembered that the majority of known populations generally support less than 30 plants (M. Matthes, NPWS, pers. comm.). Under the definition of an endangered species, Briggs and Leigh (1996) state that this

category includes taxa with populations possibly too small (usually less than 100 individuals) to ensure survival, even if present in proclaimed reserves. This reasoning would suggest that the appropriate ROTAP code should remain at 3ECi, despite the additional reserves cited.

A small number of additional conserved populations can also be added to those noted by Copeland and Hunter (1999). These include Flaggy Creek in Glenrock SRA near Newcastle, and Green Point Reserve on Lake Macquarie (M. Matthes, NPWS, pers. comm.). A small population also exists in the Singleton Military Area, which does afford some level of protection for the species (Thomas 1998). Other known locations in the upper Hunter Valley include various sites in Goulburn River NP, Wollemi NP, and Woko NP. There is some doubt over the current status of the record of *Cynanchum elegans* for Mt Dangar in Goulburn River NP (T. Tame, pers. comm; T. Peake, pers. comm.).

6. *Eucalyptus aenea* K.D. Hill (Myrtaceae)

A recently described species previously known only from a few small stands in the eastern sections of Goulburn River National Park (Hill 1997). Recent collections have been made from two populations in Manobalai NR (west of Muswellbrook), both being small stands associated with rocky sandstone outcrops which had not been burnt for (probably) > 30 years. No further stands were located during extensive survey of Goulburn River NP conducted recently (Hill 1999), nor in the adjoining Wollemi NP (Bell 1998). Hill (1997) suggested a ROTAP code of 2RC when describing the species. It is suggested that this code be amended to 2RC- to reflect representation within two conservation reserves. It is possible (but unlikely) that stands in Goulburn River NP may number around 1000 plants, however accurate estimates have not yet been made. Populations within Manobalai NR are certainly well less than this figure.

7. *Eucalyptus dealbata* Cunn. ex Schauer (Myrtaceae)

Eucalyptus dealbata is a widespread species with a scattered distribution in grassy woodland on skeletal soils on basic rocks in the Western Slopes, North Western Plains, and Tablelands of New South Wales, with occurrences also in Victoria and Queensland (Hill 1991b). During survey of Wollemi NP, a small disjunct population was recorded along the Martindale Trail near the northern perimeter of the Park, approximately 45 km south of Denman (Bell 1998). This population grows on skeletal soils of the Triassic Narrabeen sandstone series. No other populations were noted elsewhere in the Park, nor was this species recorded during survey of the nearby Goulburn River NP and Munghorn Gap NR (Hill 1999), Crown land south of Manobalai NR (Bell 1997b), or Manobalai NR itself (Peake & Bell in prep.). This record represents a sizeable extension of range within the Central Western Slopes division. While not considered a rare species, *Eucalyptus dealbata* is generally considered regionally significant within the Hunter Region, where the easterly limit of distribution now occurs.

8. *Eucalyptus fergusonii* subsp. *dorsiventralis* L. Johnson & K. Hill (Myrtaceae)

Previously known only from the Central Coast in dry sclerophyll forest on sandstone ridges from the Wollombi Valley to the Wollemi Wilderness (Hill 1991b), collections of *Eucalyptus fergusonii* subsp. *dorsiventralis* over recent years have substantiated reported

populations both within and outside of conservation reserves. This species commonly occurs in the northern parts of Yengo NP (Bell et al. 1993, Maryott-Brown & Wilks 1993), with substantial populations also in Pokolbin and Yango SFs (Binns 1996). Smaller populations occur in the east of Wollemi NP, extending as far south as near the junction of the Colo River with Tootie Creek (Bell 1998), and the Culoul Range above the Colo River (pers. obs 1998). Other populations occur within the Singleton Military Area (Thomas 1998), and it is likely that Corrabare SF also supports it. The species is also present in the north-western parts of Heaton SF (pers. obs. 2000) and in the Quorrobolong Valley (Bell & Murray 2001). Closer to the coast, the subspecies has been reported from Newcastle, although it is likely that these represent *Eucalyptus fergusonii* subsp. *fergusonii*. It does not appear that voucher specimens from this location have been lodged with State herbaria.

Briggs & Leigh (1996) apply a ROTAP code of 2RC- to *Eucalyptus fergusonii* subsp. *dorsiventralis*, although recent finds suggest that this should be amended to 2RCa, or 3RCa if populations around Newcastle are subsequently confirmed. Populations within Yengo and Wollemi NPs alone are thought to exceed 1000 plants. It is possible that exact population counts of this species will never be known, as it commonly occurs with several other ironbark species, and collection of fruits and/or buds from individual trees is often necessary to confirm identity. Hill (1991b) notes that this species occurs only in the Central Coast division. Populations within Pokolbin SF (where it is a community dominant in parts: Binns 1996) and the Singleton Military Area would extend this range into the North Coast, with the latter location probably representing the northern limit of distribution of the species.

9. *Eucalyptus nubila* Maiden & Blakely (Myrtaceae)

Eucalyptus nubila is essentially a species of the western slopes of New South Wales, occurring in sclerophyll woodland on shallow sandy soils north from Dubbo, in the North and Central Western Slopes (Hill 1991b). Sporadic collections have been made in recent years from the northern parts of Wollemi NP (Bell 1998), and at Singleton Military Area between Broke and Cessnock (Thomas 1998). Both of these collections extend the known range into the North Coast division, with the latter probably representing the eastern limit of this species. Elsewhere in the upper Hunter, this species occurs commonly in parts of Goulburn River NP and Towarri NP, in the Central Western Slopes (Hill 1999, pers. obs. 2000). While not listed as a rare species, *Eucalyptus nubila* is generally considered regionally significant in the upper Hunter Valley.

10. *Eucalyptus prominula* L. Johnson & K. Hill (Myrtaceae)

Hill (1991b) indicates that *Eucalyptus prominula* is locally frequent but highly restricted in dry sclerophyll forest on shallow sandy soils in the Bucketty district, and west along the Hunter Range, in the Central Coast division. Binns (1996) has recorded this species as common and widespread on ridges and slopes in the northern half of Pokolbin SF (the best stands of which were proposed as reserve), and more localised in the western part of Olney SF. The Pokolbin SF populations extend the known range of this species into the North Coast division. The species is also locally common in parts of Corrabare

SF (pers. obs. 2000). In reserve, *Eucalyptus prominula* is known from Yengo NP (Bell et al. 1993), and also as far south as the western Culoul Range in Wollemi NP (pers. obs. 1998–9). Populations within Wollemi NP are not extensive (Bell 1998), although it is likely that the species is present in low concentrations along the eastern portions. No counts or estimates of the species have yet occurred in either reserve, but it is possible that more than 1000 plants are represented. *Eucalyptus prominula* is considered by the author to be a rare species with a distributional range of around 80 km, probably with more than 1000 plants in reserve, but further survey is required to confirm this. Briggs and Leigh (1996) have applied a ROTAP code of 2KC- to this species, but it is suggested that this be amended to 2RC- to better reflect current knowledge.

11. *Gonocarpus longifolius* (Schindler) Orch. (Haloragaceae)

Previous records of *Gonocarpus longifolius* exist for the ranges from Armidale to the Blue Mountains, east of Rylstone, on the North and Central Coasts, Central Tablelands, and Central Western Slopes divisions (Wilson 1991a). Recent survey in the ranges around the Goulburn River valley has revealed considerable populations (> 1000 plants) both within and outside of existing conservation reserves (Bell 1998, Hill 1999, Peake & Bell in prep.). The species is particularly common in the northern portions of Wollemi NP (Bell 1998), stretching some 70 km from the California Trail to Coxs Gap. Other populations are also known from the Singleton Military Area (Thomas 1998), which probably represents the eastern most limit of the species. The current ROTAP code for *Gonocarpus longifolius* is listed by Briggs and Leigh (1996) as 3RC-, but a downgrading to 3RCa is now suggested following these recent finds.

12. *Grevillea johnsonii* McGillivray (Proteaceae)

Grevillea johnsonii occurs in rocky situations on sandstone, predominantly in the Goulburn River and Capertee River catchments on the Central Tablelands and Central Western Slopes, and with an unsubstantiated record also from the Brogo River on the South Coast (Makinson 1991). Bell (1998) reports that this species is widespread across the northern portions of Wollemi NP, extending down the western flank of the Park to at least Growee Gulf. The species also occurs in good numbers in Goulburn River NP (Hill 1999) and Manobalai NR (Peake & Bell in prep.). All populations combined would equate to a total population of well over 1000 plants. Collections made within the Goulburn River catchment in recent years suggest the current ROTAP listing of 2RCi be downgraded to 2RCa.

13. *Grevillea montana* R. Br. (Proteaceae)

Restricted to the southern rim of the Hunter Valley, *Grevillea montana* occurs in the area from Sandy Hollow to Kurri Kurri, in the Central Western Slopes and North Coast divisions (Makinson 1991, Olde & Marriott 1994). Sizeable populations (well over 1000 plants) of *Grevillea montana* are known from the northern parts of Wollemi (Bell 1998), Yengo (Bell et al. 1993) and Lower Hunter NPs (pers. obs. 2001), with other semi-conserved populations in the Myambat Logistics Company army base (Fallding, Bell & Murray 1999) and the Singleton Military Area (Thomas 1998). Binns (1996) also records the species in Cessnock and Aberdare SFs, although there is no indication of

population sizes at either location. The species is also relatively common in unreserved lands from the Cessnock to Denman area along the sandstone escarpment. *Grevillea montana* is currently listed by Briggs and Leigh (1996) with a ROTAP code of 2KC-, although survey work in recent years has revealed quite substantial populations in reserve, and it is suggested that this code be amended to 2RCa.

14. *Melaleuca groveana* Cheel & C. White (Myrtaceae)

Wilson (1991b) states that *Melaleuca groveana* grows in heath, often in exposed sites, and occurs in higher altitude areas in coastal districts north from Port Stephens, in the North Coast division. Survey in Yengo and Wollemi NPs in recent years has revealed additional populations of this species, where it occurs on Narrabeen sandstone ridges in open eucalypt forest dominated by *Eucalyptus fibrosa*, *Eucalyptus crebra*, *Eucalyptus punctata*, *Eucalyptus sparsifolia*, *Angophora costata* and *Corymbia gummifera* (Maryott-Brown & Wilks 1993, Bell 1998). In an amendment to Wilson's (1991b) treatment, populations within Yengo NP are reported as being within the Central Coast division (Harden 1993), although the Yengo populations are in fact still within the North Coast. Despite these new populations, no change is considered necessary to the current ROTAP code of 3RC- (Briggs & Leigh 1996), since detailed population counts have still to be made. The current listing of this species as Vulnerable under Schedule 2 of the *NSW Threatened Species Conservation Act 1995* is also considered appropriate until such counts occur.

15. *Pomaderris bodalla* N.G. Walsh & F. Coates (Rhamnaceae)

Pomaderris bodalla is a recently described species previously known only from the South Coast of New South Wales, between Nerrigundah and Brogo (Walsh & Coates 1997, Harden 2000). In the past, *Pomaderris bodalla* has been confused with *Pomaderris brunnea* and *Pomaderris discolor*. During survey of Wollemi NP, new collections of this species were made from the slopes of Woodlands Trig, along the northern escarpment of the Park, approximately 12 km west of Jerrys Plains (Bell 1998). While counts were not made, it is unlikely that more than 1000 plants are present in this location. This new record extends the known range of this species into the Central Western Slopes, and represents a distance of some 450 km from the South Coast locations. Walsh & Coates (1997) attributed a ROTAP code of 2R to this species when describing the species. It is suggested that this should be amended to 3RC- with the new population in Wollemi NP.

16. *Pomaderris brunnea* Wakef. (Rhamnaceae)

Pomaderris brunnea was previously confined to open forest in the lower Colo (Culoul Range) and upper Nepean Rivers to the west of Sydney, in the Central Coast division of New South Wales (Harden 1990a, Harden 2000). A new small population was recently found in western Wollemi NP, in a tributary of Tea Tree Creek, approximately 20 km east of Kandos on the Central Tablelands (Bell 1998). A small number of plants were growing in a riparian forest dominated by *Eucalyptus cypellocarpa*. This species is currently listed as Vulnerable under Schedule 2 of the *NSW Threatened Species Conservation Act 1995*, and has a ROTAP code of 2VC- (Briggs & Leigh 1996). No change is suggested for this code, as the new location lies approximately 80 km

northwest of the most distant populations in the upper Nepean River. However, note should be made of the extension of range into the Central Tablelands.

17. *Pomaderris precaria* N.G. Walsh & F. Coates (Rhamnaceae)

The recently described *Pomaderris precaria* (as *Pomaderris* sp. D in Harden 1990a) is noted by Walsh & Coates (1997) to be apparently confined to the Rylstone district, in the Central Tablelands and/or Central Western Slopes of New South Wales. Harden (2000) also adds the Mt Gundangaroo and Hillgrove areas of the Central and North Coasts. Walsh & Coates (1997) attributed a ROTAP code of 2VC-, but were unaware of some recent collections from conservation reserves. Recent survey in parts of north-western Wollemi NP (Oz Mountain: Bell 1998) and Goulburn River NP (Peachtree Flat: Bell 1997c) has established that small populations of this species do occur within reserve, lying well within the Central Western Slopes division. Fallding et al. (1999) also report this species for the Myambat Logistics Company Site, where it occurs as scattered individuals on sheltered sandstone slopes and on alluvial soils. Based on present knowledge, populations within Goulburn River and Wollemi NPs do not appear to exceed 1000 plants, as these are typically composed of less than 100 plants each. Interestingly, Walsh and Coates (1997) indicate that the name *precaria* pertains to the insecure roadside situation of the (then) only known recently collected population of this species, a situation which has now been improved.

Given the small sizes of all documented populations, and the extent of survey that has been undertaken in areas of potential habitat in Wollemi and Goulburn River NPs, and the nearby Munghorn Gap and Manobalai NRs (Bell 1998, Hill 1999, Peake & Bell in prep.), it would be appropriate to revise the current ROTAP code to 2EC-. Consideration could also be given to the listing of this species as Vulnerable under Schedule 2 of the *NSW Threatened Species Conservation Act 1995*.

18. *Pomaderris queenslandica* C. White (Rhamnaceae)

Harden (1990a) has reported that no specimens of *Pomaderris queenslandica* have been collected in New South Wales since 1904, and that this species is consequently very rare in this State. Previously known localities noted include Mt Dangar and near Gloucester, but the species is more widespread in Queensland. Harden (2000) also adds the Slopes north from the Peak Hill district. While *Pomaderris queenslandica* is listed as Endangered under Schedule 1 of the *NSW Threatened Species Conservation Act 1995*, there is no ROTAP code listed in Briggs & Leigh (1996), presumably reflecting this lack of recent material or the prevalence of the species in Queensland. Recent collections of *Pomaderris queenslandica* have occurred in the upper Hunter Valley which confirm its presence in this part of the Central Western Slopes, and probably also represent the southern limit of distribution. Fallding et al. (1999) report on collections from two sites at the Myambat Logistics Company Site near Denman, both consisting of only single individuals. More recently, several plants have been located along a creekline on the Diamond Ridge Trail in Manobalai NR north of Denman (pers. obs. 1999), and also in new additions to Towarri NP near Scone (pers. obs. 2000). All sites assist in the conservation of the species in the region, although populations do appear small (well less than 1000 plants).

As Briggs and Leigh (1996) do not list this species with a ROTAP code, the opportunity is taken here to suggest that a code of 3VCi may be appropriate, at least for the New South Wales populations. For the Central Western Slopes (= zone 51), a code of 51Ci (Manobalai NR, Towarri NP) is suggested.

19. *Pomaderris reperta* N.G. Walsh & F. Coates (Rhamnaceae)

Narrowly endemic to the Denman area, *Pomaderris reperta* was previously known only from the type locality, where shrubs are scattered over an area of approximately 1ha (Walsh & Coates 1997; Harden 2000). Description of the type material by Walsh and Coates (1997) indicated a location east of Denman, when this should in fact have been west of Denman (P. Jobson, pers. comm.). Intensive survey at the Myambat Logistics Company Site west of Denman has recently uncovered additional populations of this species (but numbering only 20–40 plants), located approximately 4 km north of the type locality, but along the same sandstone ridgeline (Fallding et al. 1999). When describing the species, Walsh and Coates (1997) suggested a ROTAP code of 2V. Although no indication is given by these authors of the size of populations present at the type locality, it is possible that, together with the new populations, a total of less than 100 plants exists. Following the system of Briggs & Leigh (1996), the species should be re-coded to 2E, to reflect the small overall population size, and the lack of representation in conservation reserves. Indeed, extensive vegetation survey in the nearby Goulburn River NP (Hill 1999), Wollemi NP (Bell 1998), and Manobalai NR and Crown land (Peake & Bell in prep., Bell 1997b) did not locate any additional populations of this species. It is also suggested that this species should be considered for listing on the *NSW Threatened Species Conservation Act 1995*, as Vulnerable (Schedule 2).

20. *Pomaderris sericea* Wakef. (Rhamnaceae)

Very few records of *Pomaderris sericea* exist for New South Wales, with Harden (1990a, 2000) stating that the species has been collected only from Berrima on the Central Tablelands at the turn of the century. Other populations exist in Victoria, where it is held (inadequately) in reserve (Briggs & Leigh 1996). In New South Wales, this species has been considered extinct in the Central Tablelands division (zone 54), and has been given an overall ROTAP code of 3VCi by Briggs and Leigh (1996). *Pomaderris sericea* is also listed as Endangered under Schedule 1 of the *NSW Threatened Species Conservation Act 1995*.

During survey of Wollemi NP, a small number of plants were located along a narrow creekline in the Benjang Gap area in the north-western section of the Park, within the Central Western Slopes division (Bell 1998). This find extends the known range of this species well north of Berrima, and confirms its existence within New South Wales. No change is considered necessary to the existing ROTAP code, although the coding for New South Wales should be amended with the addition of 51Ci (Wollemi NP).

21. *Prostanthera cryptandroides* Cunn. ex Benth. subsp. *cryptandroides* (Lamiaceae)

A recent revision of *Prostanthera cryptandroides*, *Prostanthera euphrasioides*, and *Prostanthera odoratissima* by Conn (1999) has re-evaluated the relationship within this

complex, and has concluded that a single species with two subspecies is involved (*Prostanthera cryptandroides* subsp. *cryptandroides* and subsp. *euphrasioides*). The former subspecies is restricted to the Central Tablelands and Central Western Slopes between Lithgow and Sandy Hollow, and both occur on dry rocky sandstone ridges (Conn 1999). Briggs and Leigh (1996) have applied a ROTAP code of 2RC-t for *Prostanthera cryptandroides*, indicating that the total known population is contained within conservation reserves. The species is also currently listed as Vulnerable under Schedule 2 of the *NSW Threatened Species Conservation Act 1995*, which undoubtedly refers to subsp. *cryptandroides*. Conn (1999) has suggested that neither subspecies is common and that subsp. *cryptandroides* has a very restricted distribution.

Briggs & Leigh (1996) have indicated that *Prostanthera cryptandroides* (= subsp. *cryptandroides*) is conserved within Blue Mountains and Wollemi NPs on the Central Tablelands, but is listed as Presumed Extinct in the Central Western Slopes (zone 51). A recent collection from this division at the Myambat Logistics Company Site near Denman (Fallding et al. 1999), confirms that the subspecies is still present within this area. Targeted surveys for the subspecies in late 1999 also revealed additional populations from this location (R. Miller, pers. comm.). Consequently, it is suggested that the 2RC-t ROTAP code be revised to 2VC- to indicate that the species is in fact present outside of conservation reserves, and to reflect the listing of this species in NSW on the TSC Act. The Presumed Extinct notation should also be removed from zone 51.

22. *Prostanthera hindii* B.J. Conn (Lamiaceae)

Formerly known as *Prostanthera* sp. D, this species has only recently been described, with reported locations including various sites in the upper Cudgegong Valley in the Rylstone district, parts of the northern Newnes Plateau, and near Glen Davis (Conn 1997). All collections appear to be in or near Wollemi NP, with the former two lying within the Central Tablelands and the latter just inside the Central Coast. Preferred habitat is on sandstone pagoda formations, the distribution of which extends (sporadically) from the Newnes Plateau area to north-western Wollemi NP, a distance of around 65 km. Recent collections of this species from remote parts of the middle Lee Creek catchment in north-western Wollemi NP (pers. obs. 1998) extend the known range into the Central Western Slopes, representing a distance of some 25 km north of populations in the upper Cudgegong Valley. Conn (1997) initially suggested a ROTAP code of 2RCi. This code should now be downgraded to 2RCa in light of the additional populations, and the extent of pagoda rock formations occurring along the western side of Wollemi NP (much of it remote) which probably support the species. Populations are quite sizable in the Dunns Swamp area of Wollemi, and together with those occurring to the north and south of this location, probably constitute over 1000 plants.

23. *Rulingia procumbens* Maiden & Betche (Sterculiaceae)

Rulingia procumbens was previously thought to be confined mainly to the Dubbo-Mendooran-Gilgandra region, with other occurrences in the Pilliga and Nymagee areas (Harden 1990b). Briggs and Leigh (1996) list this species with a ROTAP code of

3V, and it is also listed as Vulnerable under Schedule 2 of the *NSW Threatened Species Conservation Act 1995*. A substantial population (> 100 plants) has recently been recorded on a westerly-facing spur near Sandy Hollow, a distance of approximately 150 km from other known locations to the west (Bell 1997b). A second population on a nearby ridge was also located during this survey, although only a few plants were noted. Both populations were recorded approximately 6–8 months after an aerially ignited fuel reduction burn in Autumn 1996, and were flowering and fruiting profusely. Subsequent visits to one of the sites over the following two years failed to find the species, suggesting that it may in fact be a fire ephemeral. A further population has more recently (1999) been uncovered on the slopes of nearby Mt Dangar within Goulburn River NP, also in a burnt area (R. Miller, pers. comm.). Briggs and Leigh (1996) note that no populations are known from within conservation reserve: at least one population currently lies within Goulburn River NP, and hence it is suggested that the current ROTAP coding of 3V be amended to 3VCi to reflect this fact. The recent finds on Crown reserve offer additional opportunities for the conservation of this species, lying as they do between Goulburn River NP and Manobalai NR.

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