The Biodiversity Values of Radiata Plateau

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Nature Conservation Saves for Tomorrow

The Biodiversity values of Radiata Plateau

Radiata Plateau is a biodiversity hot spot in the Upper Blue Mountains. It is the home of rare and threatened species of both plants and animals, and supports large areas of undisturbed vegetation communities that are considered to be a significant part of the ecological diversity of the region. Rainforests of great antiquity, towering stands of the iconic Blue Mountains Ash *Eucalyptus oreades*, endangered swamps of considerable hydrological significance and windswept Blue Mountains Heaths that cling to dramatic escarpments, thrive on the plateau and in its ravines and lower foothills.

A significant number of Blue Mountains endemic plants and species classified as rare or threatened grow on the Radiata Plateau (Table 1). Some of the rare endemic plants like *Sprengelia monticola* and *Acacia asparagoides* retain a ROTAP classification from a system developed by the CSIRO and used prior to the legislation of several protective Government Acts. Other plants, vegetation communities and animals requiring special conservation measures have since been variously classified under the former NSW Threatened Species Conservation Act 1995 (TSC Act), now the Biodiversity Conservation Act 2016 (BC Act) and sometimes also by the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Two Blue Mountains endemics listed as Endangered that have been recorded on Radiata are *Pherosphaera fitzgeraldii* (Microstrobos; Dwarf Mountain Pine) of just ten waterfall spray zones between there and Wentworth Falls, and *Leionema lachnaeoides***,** a yellow star-flowered shrub of rocky heathland mostly found in small numbers between Katoomba and Blackheath.

The mix of vegetation communities provides habitat for an abundance of bird and animal life. Species listed as Vulnerable (Table 2) including the Glossy Black Cockatoo, Gang-Gang Cockatoo, Flame Robin and Varied Sittella are joined seasonally by flocks of great numbers of migrating honeyeaters and many other avian residents. The Vulnerable Spotted-tailed Quoll that has been driven from much of its territory in NSW is commonly sighted on this plateau.

The great abundance and variety of life forms reflect the number of microenvironments made available by a long history of landscape formation. Radiata Plateau is an off-shot of the Blue Mountains Range and projects in a westerly then south-westerly direction into the Megalong Valley and so receives moisture from both south-westerly and south-easterly rain-bearing winds. Aspect, slope, micro-climate, rock types, soils and plateau dissection by tributaries of Back Creek and Megalong Creek contribute as well to a diversity of habitats. Different parts of the Plateau thus experience different growing conditions and this is clearly reflected in the variability of the plant communities.

While *Eucalyptus sieberi-E. piperita* Open Forest dominates much of the Plateau surface woodlands are common on the north or west-facing slopes where there is high sun exposure and drying winds that sometimes promote fire. On skeletal soils derived from Narrabeen Sandstone on the plateau tops and towards cliff edges, Blue Mountains Heath is favoured. In the more sheltered, south-facing parts of the Plateau where slopes are cooler and damper, and on the richer deeper soils of the foothill 'skirts' below the escarpments, Tall Open Forests of *Eucalyptus oreades* and *E. cypellocarpa* lead towards deep ravines where Rainforest relicts of ancient milder climates find refuge.

With close proximity to the Greater Blue Mountains World Heritage Area, the privately owned vegetation communities of Radiata Plateau form a vital flora and fauna corridor between the protected bushland areas of Blackheath, Medlow Bath and Katoomba. This is amply demonstrated each autumn when the great flocks of honeyeaters migrate through the area from the south, and find temporary but vital life-sustaining food and shelter in forests and heaths of Radiata.

It should not be forgotten when considering the special qualities of today's vegetation communities and associated faunal diversity of Radiata Plateau that past events could have seen the widespread destruction of native habitats over this 305 hectare promontory but ultimately that did not happen. In the late 1950s/early 1960s very limited clearing of native vegetation and the planting of **Radiata Pine** *(Pinus radiata*; aka Monterey Pine*)* occurred on the plateau. Such activities were encouraged by the determination of the Commonwealth Government to turn much of Australia's remaining higher altitude bushland into pine plantations that would become the basis for a softwood timber import replacement industry. For 11 years from the mid-1960s annual plantings were encouraged by the assistance of the Commonwealth's 'Softwoods Forestry Agreement' loans. However all small-scale plantations from Katoomba to Blackheath proved to be unsuccessful.

It is understood that the **pine plantation** on Radiata Plateau affected no more than **5%** or 15 hectares of the 305 hectares **of available land.** An understanding of the very limited original extent of the pines can be gained by reference to vegetation type 13 on Map 1. The venture ultimately failed, though the name that has replaced the previous Elphinstone Plateau (or Pulpit Plateau) persists. Decades later the few pockets of remaining trees that are well past maturity are in a much deteriorated state; most have died and fallen, the rest face a limited life expectancy. A diverse and resilient assemblage of native trees and understory shrubs is rapidly reclaiming the previous plantation area, unimpeded by remnant pines. This previous land use of a tiny percentage of the plateau surface does not present a long-term threat to the viability of the natural ecological communities of Radiata nor does it reduce the value of the Plateau as a significant area to conserve.

Vegetation Communities and associated Fauna of Radiata Plateau and its Escarpments

[Unless otherwise stated the Threatened status (Endangered or Vulnerable) of some species included below refer to listings under the NSW Biodiversity Conservation Act 2016 formerly the Threatened Species Conservation Act 1995]

The main vegetation communities of Radiata Plateau and its escarpments are shown in Map 1. Of the seven communities recognised (plus the two on the footslopes), all but one is classified as a Scheduled Vegetation Community by the Blue Mountains City Council. To be classified as "Scheduled" the community must be considered to be significant according to one or more criteria that include listing under the NSW *Threatened Species Conservation Act 1995* (now the *Biodiversity Conservation Act 2016*) and/or the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*; being rare or having a restricted distribution; poorly or not represented in the Blue Mountains National Park; protective of hydrological functions; or an important habitat for significant flora and fauna species. The abundance and diversity of scheduled vegetation communities serves to reinforce the need to conserve this special place.

The **main communities associated with the Plateau and its escarpments** (Map 1) today include:

- ***Eucalyptus sieberi-E. piperita* Open Forest** (11A; non-scheduled)

  This is the dominant community on the Plateau and it is mostly encountered to the north and west of the trail extension of Pulpit Hill Road. *E. sieberi* (Black Ash) and *E. piperita* (Sydney Peppermint) are joined in the canopy by *Acacia elata* (Cedar Wattle) and *Eucalyptus sparsifolia* (Narrow-leaved Stringybark) and in the understorey by a high diversity of shrub and herb species that as a collection, could be considered to be unique to the Plateau.

  Just a few of the many understorey species that grow in this community include *Acacia asparagoides* that may reach its south-easterly limit on Radiata Plateau (ROTAP listed), *Acacia obtusifolia, Acacia terminalis* subsp. *aurea, Amperea xiphoclada, Banksia cunninghamii, Ceratopetalum gummiferum, Gompholobium latifolium, Goodenia heterophylla, Lomandra longifolia, L. obliqua, Olearia myrsinoides, Persoonia chamaepitys, Pomaderris ledifolia, Telopea speciosissima* and *Xylomelum pyriforme.* A tall and unusual *Monotoca* that is under investigation is also found in this community. There are ferns including *Lindsaea microphylla* and *Sticherus lobatus,* the ancient club moss *Lycopodium deuterodensum* and an array of terrestrial orchids from genera such as *Acianthus*, *Chiloglottis*, *Cryptostylis, Dipodium* and *Pterostylis.*

  A diversity of plants attracts an abundance of birds and this is clearly evident in the *E. sieberi-E. piperita* Open Forest of Radiata Plateau. Bird sightings include Australian Magpie, Buff-rumped Thornbill, Eastern Whipbird, Eastern Yellow Robin, Crimson Rosella, Golden Whistler, Grey Currawong, Grey Fantail, Grey Shrike-Thrush, Laughing Kookaburra, Pied Currawong, Red Wattlebird, Rufous Whistler, Southern Boobook, Striated Thornbill, Yellow-faced Honeyeater and Yellow-tailed Black-Cockatoo. **Birds** that are listed as **Vulnerable** under State legislation also frequent these forests. Gang-gang Cockatoos, for example, crunch on seed capsules of *E. piperita* and Glossy Black-Cockatoos on *Allocasuarina littoralis* (Black She-oak); a rare splash of red amongst fallen timbers or in shrubbery might indicate the presence of the Scarlet Robin. Dusky Woodswallows are occasionally attracted by the myriad of forest insects during their seasonal migrations. Other **Vulnerable**-listed species that are infrequent visitors include a number of birds of prey. The Little Eagle might be seen perched on the dead limb of a tall eucalypt silently watching for a reptilian lunch on the ground or a Square-tailed Kite may rise on a thermal from the valley to scoop up insects as it slowly circles through the outer canopy of the eucalypts.

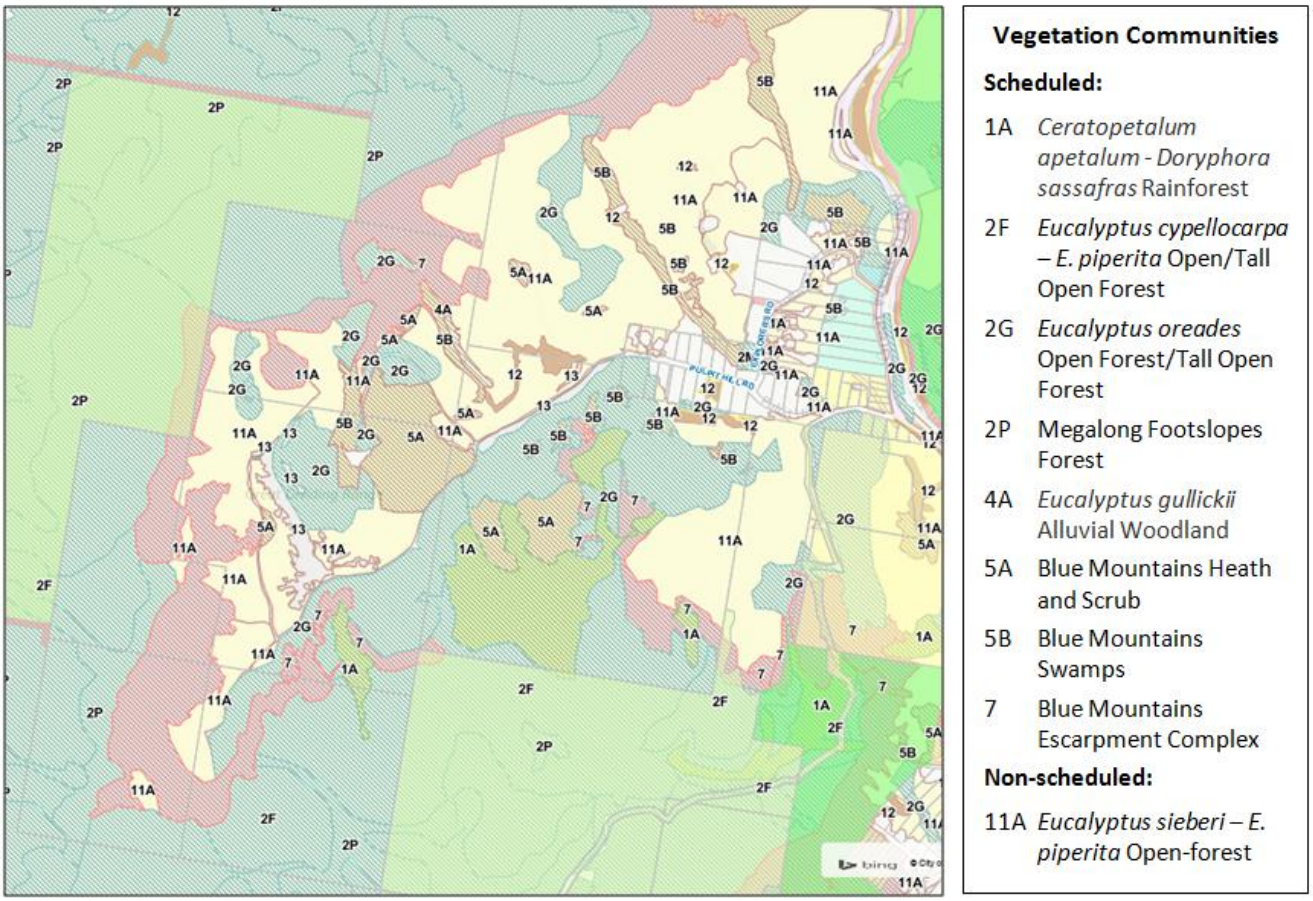
  Though no comprehensive studies have been done of other fauna including mammals and reptiles it is expected that a range of possums including the Brush-tailed Possum, macropods, antechinus and micro-bats, some of whom may be threatened, would inhabit this forest type. The most recorded mammal is the **Spotted-tailed Quoll** that has been eliminated from much of its range in New South Wales and is now listed as **Vulnerable**. Apart from several skinks (Red-throated Skink, Southern Grass Skink and Weasel Skink) and the Red-bellied Black Snake, little is officially known of the reptilian residents of the Plateau. The paucity of species indicates a lack of systematic surveying of this wild and often inaccessible place, not an actual lack of fauna.

- ***Eucalyptus oreades* Open Forest/Tall Open Forest** (2G; scheduled)

  Eucalyptus oreades (Blue Mountains Ash) is the iconic tree of the Upper Blue Mountains and it is found in stands of great stature on the Radiata Plateau in fire protected sites at the heads of

gullies, on the damper slopes such as to the south of the access road and even perched precariously along parts of the escarpment. Other eucalypts such as *Eucalyptus blaxlandii* (Blaxland's Stringybark) are sometimes found on its fringes and *Acacia elata* (Cedar Wattle) is a common smaller tree. Understorey plants are shade and moisture tolerant and include *Callicoma serratifolia, Ceratopetalum apetalum, Elaeocarpus reticulatus* and *Telopea speciosissima. Epacris purpurascens* (likely var. *onosmiflora)* has also been recorded here. Ferns are usually abundant and include the Rough Tree-fern *Cyathea australis, the* King Fern *Todea barbara* and ground ferns like *Blechnum cartilagineum, B. wattsii, Calochlaena dubia* and *Pteridium esculentum.*

Eucalyptus oreades forest provides nesting and feeding opportunities for a range of birds, some of which have already been listed for adjoining Open-forests. Tree hollows are in particular demand by Glossy Black-cockatoos (Vulnerable), Yellow-tailed Black-cockatoos and Gang-gangs (Vulnerable). Flame Robins (Vulnerable), King Parrots, Lewin's Honeyeater and the Tawny Frogmouth inhabit the upper canopy. A chattering flock of green Little Lorikeets (Vulnerable) might occasionally stop-over when Eucalypts are in flower or mistletoe is in fruit. The leaf litter scratching of resident Superb Lyrebirds is ever present. Also seeking out tree hollows and higher perches are Greater Gliders (Vulnerable; EPBC Act) and possibly Yellow-bellied Gliders (Vulnerable). Powerful Owls (Vulnerable) provide substantial competition for hollow-homes and terrify Common Ringtail Possums, their favourite prey.



Map 1: Vegetation Communities of Radiata Plateau and Environs

Source: Blue Mountains City Council On-line Interactive Maps
(© City of Blue Mountains 2017; © Spatial Services 2017)

- ***Eucalyptus gullickii* Alluvial Woodland** (4A; scheduled)

  Eucalyptus mannifera subsp. *gullickii* (Mountain Spotted Gum) dominates a small but distinctive vegetation community in the main tributary of Back Creek that drains the northern part of Radiata Plateau. *E. mannifera* usually grows in association with *E. radiata* (Narrow-leaved Peppermint) and forms a very open canopy above a swampy understorey of shrub and fern species that may include *Leptospermum polygalifolium, Polyscias sambucifolia, Lomandra longifolia, Blechnum nudum* and *Gleichenia dicarpa*. This community only grows on creek-side alluvium and is quite rare on the western edge of the Blue Mountains so its presence here is **significant**.

- **Blue Mountains Heath and Scrub** (5A; scheduled)

  Heath and scrub occur where a predominance of thin soils and exposure to wind and/or sunlight result in low soil water retention, inadequate root zone capacity and thus the exclusion of forest communities. Escarpment edges, the vicinity of Mount Elphinstone and the steep west-facing slope above the "dam" provide suitable habitat for this community on Radiata Plateau. It is characterised by an absence of, or a scattering of low trees (eg *Eucalyptus sclerophylla*) and mallees (eg *E. stricta*) and a well developed scleromorphic shrub layer. Common shrubs, herbs and sedges include *Allocasuarina distyla, A. nana, Banksia ericifolia, Epacris microphylla, Hakea laevipes, H. teretifolia, Kunzea capitata, Lepidosperma filiforme, L. viscidum, Leptospermum trinervium, Lepyrodia scariosa, Petrophile pulchella and Platysace linifolia.*

  Two significant plants grow in Blue Mountains Heath and Scrub on Radiata Plateau:

  Persoonia acerosa – this is an erect to spreading, softly foliaged shrub that is listed as **Vulnerable** in both the BC Act 2016 and the EPBC Act 1999. It has a sparse distribution mainly through the mid and upper Blue Mountains; on Radiata Plateau it appears to prefer scrubby locations.

  Leionema lachnaeoides – is a yellow flowered tall **Endangered** shrub of barren, rocky situations and is endemic to the Upper Blue Mountains where it is currently only recorded on 10 sites on the southern escarpment between Katoomba and Blackheath (BC Act 2016, EPBC Act 1999). It was identified in exposed sandstone heathland on the southern edge of Radiata Plateau in 1989. An urgent survey is required to determine the full distribution of this unusual and quite rare member of the Rutaceae family on the Plateau.

  It is in heath communities where the interconnectedness and interdependence of plants, insects and birds can clearly be seen. The diverse assemblage of plant species provides habitat and food sources for many insects as well as for chatty display of birds that include the insectivorous honeyeaters on their well-known autumn migration from south to north across the Blue Mountains. The nectar-abundant and insect-filled *Banksia ericifolia* as well as other heathland plants that flower progressively from autumn to spring support an astounding diversity of birds that include the Brown-headed Honeyeater, Crescent Honeyeater, Fuscous Honeyeater (an unusual visitor to the Blue Mountains), New Holland Honeyeater, White-eared Honeyeater, White-naped Honeyeater, Yellow-faced Honeyeater, Eastern Spinebill, Red Wattlebird, Noisy

Friarbird and Silvereyes. Small birds including Variegated Fairy-wrens, Beautiful Firetails, and Rockwarblers (a Sydney Region endemic) play hide-and-seek through dense shrubbery and sometimes across bare rock surfaces. Glossy Black-Cockatoos (Vulnerable) glide in stunning red and black formations down the slopes from one stand of *Allocasuarina distyla* to another.

The Broad-headed Snake that is endemic to sandstone country within a 200km radius of Sydney could find suitable rocky crevices within the Heath and Scrub community of Radiata. Listed as Endangered in NSW (BC Act) and Vulnerable nationally (EPBC Act 1999) it has a declining distribution but it is found in the Upper Mountains. The Plateau would provide ideal habitat for this species as it particularly prefers rocky outcrops with west to north-westerly aspects. Should systematic fauna surveys be conducted on the Plateau its presence and that of many other possible species could be confirmed.

Table 1: A Selection of the Rare or Threatened Plants and Communities of Radiata Plateau

Further research may indicate additional species

Species or Community	Biodiversity Conservation Act 2016	Environment Protection and Biodiversity Conservation Act 1999	ROTAP Rare or Threatened Australian Plants
Acacia asparagoides			✓
Almaleea incurvata			✓
Carex klaphakei*	Endangered		
Leionema lachnaeoides	Endangered	Endangered	✓
Persoonia acerosa	Vulnerable	Vulnerable	✓
Pherosphaera fitzgeraldii	Endangered	Endangered	✓
Sprengelia monticola			✓
Blue Mountains Swamps	Vulnerable Blue Mountains Swamps in the Sydney Basin Bioregion	Endangered Temperate Highland Peat Swamps on Sandstone	

* Likely habitat with species to be confirmed

- **Blue Mountains Swamps** (5B; scheduled) – **a Threatened Ecological Community**

  Blue Mountains Swamps occur on Radiata Plateau below zones where claystone or ironstone layers in the Narrabeen Sandstone channel groundwater out onto slope surfaces. The peaty sands of the swamp act like great sponges soaking up the groundwater and slowly releasing it into headwater channels that sustain downstream waterfalls, the larger Megalong and Back Creek systems and their associated life forms. They are widely recognised as playing a pivotal role in Blue Mountains stream hydrology.

  Blue Mountains Swamps support a unique assemblage of moisture-loving plants that include the **Blue Mountains endemics** *Grevillea acanthifolia* subsp. *acanthifolia* and *Almaleea incurvata* (ROTAP) as well as a range of ferns and sedges including thickets of *Gahnia sieberiana* and great tufts of Button Grass *Gymnoschoenus sphaerocephalus.* It is possible that the newly discovered and classified sedge, *Carex klaphakei,* (Endangered listing BC Act 2016) might also be found in

these swamps but its presence is yet to be investigated. The swamp environment is the habitat of a number of specialised birds that could include the secretive Rail species and Southern Emu-wrens. Particularly when the grevilleas are in flower an abundance of honeyeaters including Eastern Spinebills, Scarlet Honeyeaters and New Holland Honeyeaters provide colour and sound. Of special significance is the presence of Biodiversity Conservation Act listed **Endangered fauna species** including the Giant Dragonfly *(Petalura gigantea)* and the Blue Mountains Water Skink (*Eulamprus leuraensis;* also listed under the EPBC Act 1999*).*

In recognition of their important hydrological role, diverse ecology and a limited extent that has been much threatened by development, **Blue Mountains Swamps in the Sydney Basin Bioregion** are listed as **Vulnerable** under New South Wales Government legislation (Threatened Species Conservation Act 1995 now the Biodiversity Conservation Act 2016), and under Commonwealth legislation (Environment Protection and Biodiversity Conservation Act 1999) as part of the **Endangered Ecological Community of Temperate Highland Peat Swamps on Sandstone**. They play an unquestionably important role in both the hydrology and ecology of Radiata Plateau.

Table 2: A Selection of the Threatened Fauna of Radiata Plateau

Further research may indicate additional species

Species	Biodiversity Conservation Act 2016	Environment Protection and Biodiversity Conservation Act 1999
Birds		
Dusky Woodswallow	Vulnerable	
Flame Robin	Vulnerable	
Gang-gang Cockatoo	Vulnerable	
Glossy Black-Cockatoo	Vulnerable	
Little Eagle	Vulnerable	
Little Lorikeet	Vulnerable	
Powerful Owl	Vulnerable	
Scarlet Robin	Vulnerable	
Square-tailed Kite	Vulnerable	
Sooty Owl	Vulnerable	
Varied Sittella	Vulnerable	
Mammals		
Greater Glider		Vulnerable
Spotted-tailed Quoll	Vulnerable	Endangered
Yellow-bellied Glider *	Vulnerable	
Reptiles		
Blue Mountains Water Skink *	Endangered	Endangered
Broad-headed Snake *	Endangered	Vulnerable
Insects		
Giant Dragonfly *	Endangered	

* Likely habitat with species to be confirmed

- **Blue Mountains Escarpment Complex** (7; scheduled)

  The Blue Mountains Escarpment Complex is a set of distinctive vegetation types that are most commonly associated with moist, sheltered rock faces of the sandstone escarpments of the Upper Blue Mountains. The community varies from swamp plants of dripping rock ledges, wet heaths, bands of ferns and associated plants precariously growing in claystone layers in the spray zones of waterfalls, cliff edges of mallee eucalypts to narrow rainforest ravines. The areas covered by each of these vegetation types are very small and difficult to map individually and so they are grouped together as an Escarpment Complex. On Radiata Plateau the community is mostly encountered on the moist and shaded southern escarpment.

  Small shrub and fern species that cling to fine bands of shale or claystone include *Alania endlicheri* (local endemic), *Baeckea linifolia*, *Blechnum wattsii*, *Dracophyllum secundum, Drosera binata, Epacris reclinata, Gleichenia microphylla, Leptospermum rupicola* and *Sprengelia monticola* (local endemic). Larger shrubs and ferns like *Callicoma serratifolia, Leptospermum polyanthum, Todea barbara* and even specimens of *Ceratopetalum apetalum* (Coachwood) and *Eucalyptus oreades* inhabit ravines and the thicker clay-rich layer of Mount York Claystone that divides the cliff-line into two sandstone halves.

  Of special note on the southern escarpment of Radiata Plateau is the presence of the Upper Blue Mountains endemic plant ***Pherosphaera fitzgeraldii*** (Microstrobos; Dwarf Mountain Pine). It grows on the Plateau in the spray zone of waterfalls in south-facing ravines formed by tributaries of Megalong Creek. Radiata Plateau is one of only ten locations for this very rare conifer and the western limit of its occurrence. It is completely dependent for its survival there on continuous clean water provided by the upland swamps and unpolluted streams of Radiata Plateau, and on an absence of weeds. *P. fitzgeraldii* is listed as **Endangered** under both the BC Act 2016 and the EPBC Act 1999.

- ***Ceratopetalum apetalum - Doryphora sassafras*** **Rainforest** (1A; scheduled)

  The most sheltered, well-watered, deeper-soiled and fire-free ravines of the southern escarpment of Radiata Plateau provide a refuge for a rainforest community that is a relic of a once widespread vegetation type that existed tens of millions of years ago when the climate was milder and fire less prevalent than today. Though dominated by the trees *Ceratopetalum apetalum* (Coachwood) and *Doryphora sassafras* (Sassafras) other tall growing species such as *Acacia elata* (Cedar Wattle), *Acmena smithii* (Lilly-pilly) and *Quintinia sieberi* (Possumwood) may contribute to the dense forest canopy. The deep shade created by the closed canopy ensures an understorey of abundant ferns that may include *Blechnum cartilagineum, B. nudum, B. wattsii, Cyathea australis, Dicksonia antarctica* and *Todea barbara,* as well as an array of climbers and scramblers like *Cissus hypoglauca* (Five-leaf Water Vine) and *Pandorea pandorana* (Wong Wonga Vine).

  Superb Lyrebirds are ever-present in this community with its deep soil and invertebrate-rich leaf litter. Other avian inhabitants include the Bassian Thrush, Brown Cuckoo-Dove, Brown Gerygone, King Parrot, Rose Robin, Rufous Fantail, Satin Bowerbird, Wonga Pigeon and Yellow-throated Scrubwren. At night it is busy in the understorey with the scurrying of Antechinus species, Bush

Rats and Water-rats while in the canopy Common Ringtail Possums try to avoid the attention of hungry Sooty Owls (Vulnerable; BC Act 2016).

Vegetation Communities and associated Fauna of the Lower slopes of Radiata Plateau

Beneath the Triassic Narrabeen Sandstone Escarpments of Radiata Plateau, steep slopes have formed on the underlying Permian Illawarra Coal Measures and Shoalhaven Group of rocks. Two Scheduled vegetation communities are found on these slopes within the boundaries of the private properties of Radiata (Map 1). These are:

- ***Eucalyptus cypellocarpa – Eucalyptus piperita*** **Open/Tall Open Forest** (2F; scheduled)

  This community has a very limited distribution mostly in the Megalong and Kanimbla Valleys with just scattered outliers as far east as Woodford so any existing stand is significant. An ecologically important occurrence of *E. cypellocarpa* Tall Open Forest is found on moist, south-east facing talus slopes that cover the coal measures beneath the main escarpment of Radiata Plateau. While *E. cypellocarpa* (Monkey Gum) trees dominate the canopy, *E. oreades* (Blue Mountains Ash) and some *E. piperita* (Sydney Peppermint) also occur here. The understorey is dominated by soft-leaved shrubs and ferns. *Callicoma serratifolia* (Callicoma)*, Acacia longifolia* (Sydney Golden Wattle) and *Leptospermum polygalifolium* (Yellow Tea-tree) are scattered amongst Bracken Fern *(Pteridum esculentum),* Gristle Fern *(Blechnum cartilagineum)* and Spiny-headed Mat-rush (*Lomandra longifolia).*

  Eucalyptus cypellocarpa Tall Open Forest is a rich habitat for fauna. Nesting hollows of taller trees are sought out by a number of species including Greater Gliders as well as birds that are listed as Vulnerable in the Biodiversity Conservation Act 2016. These include the obligate hollow-nesters Powerful Owl, Sooty Owl and Glossy Black-Cockatoo (Smith & Smith 1995).

- **Megalong Footslopes Forest** (2P; scheduled)

  This is a variable community that grows downslope from the *Eucalyptus cypellocarpa* Open-forest to the banks of Megalong Creek on the south-eastern flanks of Radiata Plateau, and directly beneath the plateau's western and north-western escarpments. Geology varies from the shales and fine sandstones of the Permian Illawarra Coal Measures to lower altitude clays of Berry Siltstone of the Shoalhaven Group resulting in soils of different textures and drainage capacities. Aspect, exposure to sunlight and prevailing winds, and moisture availability will be different depending on the actual site locations.

  The species composition of this community will vary according to growing conditions. On the sheltered south-eastern slopes towards Megalong Creek, the association of vegetation may include *E. cypellocarpa, E. oreades* and *E. piperita* as well as a set of understorey plants that change from fern and soft shrub dominated species as already outlined for upslope communities to scleromorphic species more typical of drier forest. The loams of the Shoalhaven Group on the western/north-western slopes on the other hand, may support a drier, more open association of Stringybarks including *Eucalyptus eugenioides* (Thin-leaved Stringybark) and *E. globoidea* (White Stringybark) together with *E. punctata* (Grey Gum), *E. sieberi* (Black Ash) and *E. viminalis* (Ribbon

Gum). An understorey of scleromorphic shrubs may include *Acacia obtusifolia, Banksia spinulosa, Choretrum candollei, Grevillea laurifolia, Isopogon anemonifolius, Leptospermum trinervium, Monotoca scoparia, Persoonia levis* and *Podolobium ilicifolium.*

The faunal inhabitants of this complex community will vary according to the structure of the plant assemblage and its species make-up. Vegetation associations within the Megalong Footslopes Forest complex should be individually assessed for flora and fauna as the need for such information arises. Careful observation may reveal the presence of two very significant birds, the Regent Honeyeater and the Swift Parrot. Listed as **Critically Endangered** at both a State and Commonwealth level, the striking yellow and black **Regent Honeyeater** has been lost from most of its former range. It is a generalist forager that is particularly attracted by large volume nectar-producing Eucalypts as well as the nectar and fruit of mistletoe. In 2012 a single bird was seen in Megalong Footslopes Forest close to the private property of Radiata; more may be sighted with focused surveys. Listed as **Endangered** at a State level and **Critically Endangered** by Commonwealth legislation, bright green **Swift Parrots** were observed during their northward autumn migration above the neighbouring Narrow Neck Peninsula in 2017; other sightings have previously been made along Megalong Creek. Also attracted by nectar-producing Eucalypts, as well as by lerp infestations, Swift Parrots may find a habitat refuge in the Megalong Footslopes Forest during seasonal migrations.

To conclude: It is beyond doubt that Radiata Plateau is an island of biodiversity in the developed and disturbed environment of the Upper Blue Mountains. Significant numbers of endemic plants and those with limited distributions, species of flora and fauna that are listed as either Endangered or Vulnerable under State and or Commonwealth legislation, a nationally recognised threatened ecological community and another that survives from ancient times are amongst the great number of species and considerable diversity of natural communities that contribute to the high conservation values of this special place. River systems and biological communities distant from the Plateau benefit as well from its hydrological services, micro-climatic impacts and life-support systems.

Even on the incomplete evidence available it is abundantly clear that Radiata Plateau supports a unique and richly diverse and interlocking set of ecosystems. With future scientific research the presence of many more plants, animals and other life forms, the uniqueness of the biodiversity and the ecosystem importance of this place will be further reinforced. Radiata Plateau must be provided with the highest level of environmental protection possible.

Thank you to Judy Smith and Carol Probets for insightful comments

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