Distribution and habitat of the vulnerable tree species, *Angophora inopina* (Myrtaceae), on the Central Coast of New South Wales

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***Abstract*:** *Angophora inopina* is a vulnerable tree species occurring principally in Wyong and Lake Macquarie local government areas on the Central Coast, with disjunct populations as far north as Bulahdelah on the North Coast of NSW. The largest and most intact stands occur within the Wyee-Morisset areas although even here significant fragmentation is evident. North of Toronto, there are small and scattered residual populations as far as Barnsley near West Wallsend in Lake Macquarie. A total area of occupied habitat of approximately 1500 ha is estimated.

Cluster analysis of floristic information showed that *Angophora inopina* occurs within three broad habitat types within the Central Coast bioregion, centred mainly on the Gorokan, Doyalson and Wyong soil landscapes. Hybrid forms of the species also occur on the Cockle Creek landscape in northern Lake Macquarie. Most stands are evident within open woodland/ forest vegetation where *Eucalyptus haemastoma*, *Corymbia gummifera*, and *Eucalyptus capitellata* dominate with *Angophora inopina*. Other populations occur in wet heath, and swamp woodland environments where sedge species are characteristic.

Conservation of *Angophora inopina* will be most effectively and efficiently achieved if ecological processes that operate across the landscape are maintained. Processes such as fragmentation, altered fire regimes or invasion of habitat by exotic species must be managed in the long-term. These are all significant threats to this species, and will best be effectively managed in the larger remnants in a landscape approach. Such threats are generally associated with urban and agricultural expansion in the area, and these are therefore the most pressing issues to be managed.

***Cunninghamia* (2004) 8(4): 477–484**

Introduction

Angophora inopina K.D. Hill (family Myrtaceae) is a small tree species previously thought to be restricted to the Wyee–Charmhaven area of the New South Wales Central Coast (Benson & McDougall 1998), but now known to extend as far north as Bulahdelah on the mid North Coast (Fig. 1). Prior to its formal description (Hill 1997), *Angophora inopina* had been confused with the common *Angophora floribunda*, and was at times referred to as an unusual form of that species (e.g. Payne & Duncan 1999). In May 1998, the NSW Scientific Committee listed *Angophora inopina* as Vulnerable (Schedule 2) on the NSW *Threatened Species Conservation Act 1995* (TSC Act), in recognition of its fragmented and restricted distribution, and the threatening processes acting upon its habitat. At the time of listing, little information was available on the distribution of the species, or of its conservation status within proclaimed reserves. *Angophora inopina* has also been included on the schedules of the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*.

Hill (1997) reported the habitat of this species to be open dry sclerophyll woodland of *Eucalyptus haemastoma*, *Corymbia gummifera* and *Eucalyptus capitellata*, over a dense shrubby understorey. No other information on habitat or distribution has been published, apart from brief entries in floras and eucalypt identification keys (e.g. Hill 2002, Brooker et al.

Fig. 1. A mature specimen of *Angophora inopina*, illustrating the typical habit across most of its range.

2002). Tierney (2004) has recently examined the reproductive characteristics, and concluded that although most populations will be resilient to low recruitment levels in the short-term, understanding and monitoring of population structural change is a priority for this species in the long-term.

This paper, based on survey and mapping work for Wyong and Lake Macquarie councils (Bell 2001a) describes the extent of *Angophora inopina* populations within the NSW Central Coast and outlines the habitat for the species in this region.

The study area

The Central Coast region lies approximately 100 km north-east of Sydney, within the Sydney Basin bioregion (Thackway & Cresswell 1995), and the Central Coast botanical subdivision (Anderson 1961). The study area includes Wyong and Lake Macquarie local government areas (Fig. 2). Existing conservation reserves within these two LGAs include all or parts of Munmorah, Glenrock, Lake Macquarie and Jilliby State Conservation Areas, Watagans and Wyrrabalong National Parks, and Pulbah Island, Tingira Heights and Awabakal Nature Reserves.

The NSW Central Coast falls within a warm temperate climatic zone, with a maritime influence near the coast, and experiences warm wet summers and cool dry winters. Rainfall generally peaks in late Summer and early Autumn, although local variations due to topography are evident. Annual average rainfall ranges from 1207 mm at Kulnura to 1589 mm in Olney State Forest. Temperatures range from a daily average low of 4°C in July, to a high of 27°C in January and February (Bureau of Meteorology 2001).

Geologically the study area is part of the Hornsby Plateau subdivision of the Sydney Basin, and is comprised of consolidated sediments of the Triassic Hawkesbury and Triassic Narrabeen series (Bembrick et al. 1980). On the Central Coast lowlands only the lower sections of the Narrabeen Group outcrop, comprising the Clifton Sub-Group, where the Patonga Claystone, Tuggerah Formation, Mumorah Conglomerate and Dooralong Shale have been recognised (Uren 1980). Extensive areas of unconsolidated alluvial soils occur along major valleys and streams, and large deposits of Quaternary marine and aeolian sands occur along the coast-line. Soil landscapes have been described by Murphy (1993) and Murphy and Tille (1993).

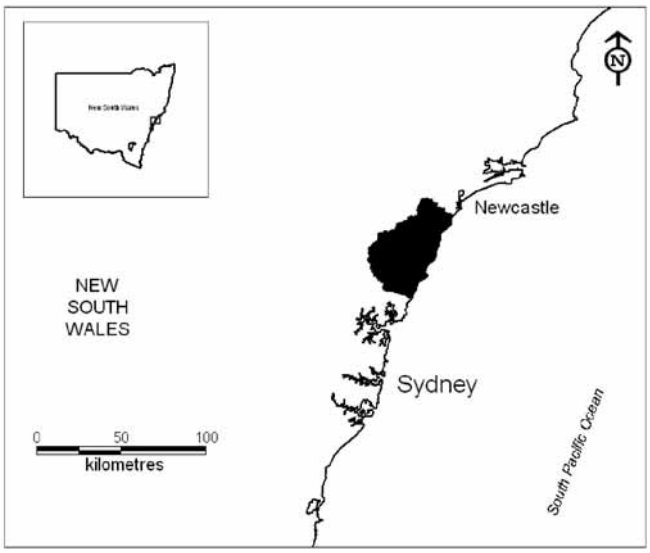

Fig. 2. Location of the Central Coast study area

Methods

Mapping occupied habitat

General observations on the Central Coast distribution of *Angophora inopina* indicated that the species most commonly occurred on the Doyalson (do) and Gorokan (gk) soil landscapes of Murphy (1993), or in shallow alluvial soils of the Wyong (wy) soil landscape (Bell 1996, Hedley 1997, Hedley & Branwhite 1998, Bell 1999, Leonard 2001). Records of environmental consultants and other botanists, and data from the NSW National Parks and Wildlife Service wildlife atlas provided initial reference points for ground searches. Populations and sub-populations were initially mapped at 1:25 000 scale following extensive ground truthing within these targeted soil landscapes, and then revised with larger scale mapping (1:16 000) after assessments of each site were made. Population extent was mapped using a handheld GPS for identification of stand boundaries, with polygons marked directly onto topographical map sheets.

Rapid habitat assessment

A rapid habitat assessment was carried out at most *Angophora inopina* stands. This process involved the collection of a range of environmental variables from each discrete sub-population, which (for the purpose of this study) was defined as one which was separated by at least 100 m from any other occurrence of the species. Separations due to anthropogenic sources (e.g. clearing, road corridors etc.) were not considered in this definition. Populations were defined following the rationale of Keith et al. (1997), whereby distinct populations can be deemed as those which are separated by a geographical discontinuity of more than 1 km.

Variables examined included estimated population size, weed abundance, erosion, fire history, general access and trail condition, subjective health of adult *Angophora inopina* trees and reproductive status, population structure, population fragmentation, vegetation and habitat homogeneity, extent of grazing or other disturbance and degree of hybridisation. Hybrid forms of the species were deemed as those plants showing more coriaceous leaves when compared to specimens at the type location, petioles greater than 8 mm in length, and exhibiting a habit generally more akin to *Angophora floribunda* than *Angophora inopina*. Experience had shown that such specimens were often but not always growing in deeper alluvial soils. Individual scores for each

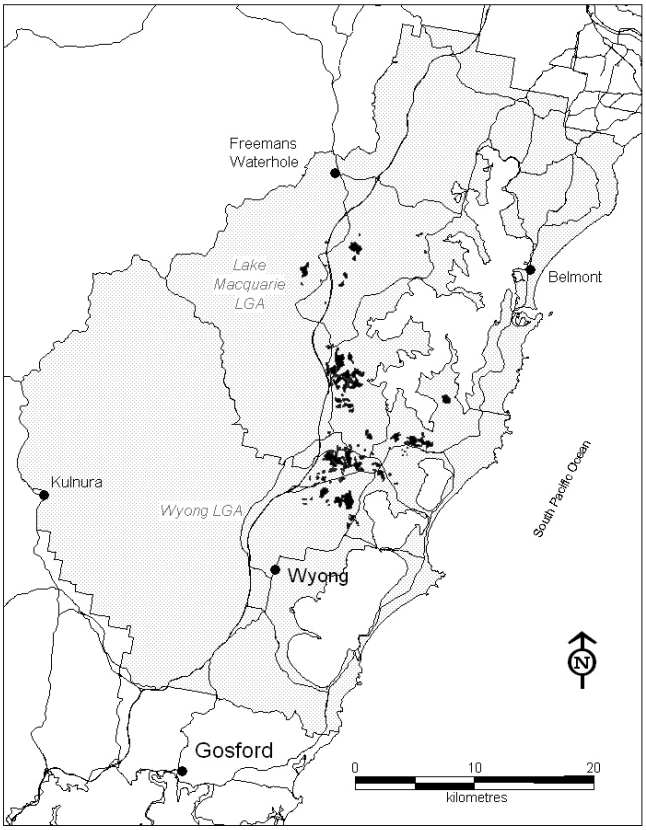

Fig. 3. Occupancy area of *Angophora inopina* (dark shading) on the Central Coast.

attribute in each sub-population were noted on a standard pro-forma field sheet, and then tallied to provide a habitat score. The maximum score of 44 would represent very high habitat quality.

Classification of habitat

Classification of *Angophora inopina* habitat was undertaken using plot-based floristic data from sites chosen as representative of the main habitats. Much of this data was collected for the survey and mapping program undertaken by the NSW National Parks and Wildlife Service for the bioregional study of the vegetation occurring in the lower Hunter Valley and Central Coast (NPWS 2000). All studies incorporated the recording of all vascular plant species within 0.04 ha plots (nominally 20 m × 20 m quadrats). For each taxa present, modified Braun-Blanquet cover abundance values (1–6) were applied to quantify abundance (Poore 1977). Broad structural data also collected at each site included strata (vegetation layers) present, height and projected foliage cover, and dominant species for each strata. Multivariate statistical analysis using the *PATN* clustering program (Belbin 1995a, 1995b) was performed to identify the floristic associates of *Angophora inopina*, and to determine the relationships between various stands.

Results

Mapping of known populations

Approximately 1500 ha of *Angophora inopina* habitat has been mapped for Wyong and Lake Macquarie LGAs. Most populations lie within the Central Coast Lowlands physiographical region of Murphy (1993), extending for 35 km (approximately the Wallarah catchment to Barnsley). This habitat occurs across a range of land tenures, but is highly fragmented across the landscape, existing in small stands of <0.5 ha to areas as large as 300 ha (Fig. 3). The total north–south distributional extent for the species is 120 km, when northern populations around Karuah and Bulahdelah are considered (Bell 2001a).

Rapid habitat assessment

Thirty-eight sub-populations of *Angophora inopina* were assessed for habitat quality. A maximum habitat score of 38 (out of a possible 44) was achieved by stands near Wyee, while the minimum score of 21 occurred in small fragmented sub-populations where hybridisation with *Angophora floribunda* was evident. These results have been incorporated into a conservation strategy for the species, whereby areas identified as supporting higher quality habitat have been targeted for inclusion in regional conservation networks and green corridors.

Classification of habitat

Cluster analysis of forty-two floristic sites from the Central Coast revealed that *Angophora inopina* occurs most frequently in one of three main vegetation communities: *Eucalyptus haemastoma* Woodland/Forest (Community 1), containing the bulk of the population, and with lesser occurrences in *Hakea teretifolia – Banksia oblongifolia* Wet Heath (Community 2) and *Eucalyptus resinifera – Angophora costata* Sedge Woodland (Community 3). Table 1 shows plant species common to the three communities, and indications of their relative abundance in each, derived from examination of two-way tables.

In addition, representation of *Angophora inopina* in other geographically restricted vegetation types not described here may also have significant conservation value. These include an *Angophora inopina* × *Angophora floribunda – Melaleuca* Thicket Forest from the northern Lake Macquarie area, where hybrid zones of *Angophora inopina* × *Angophora floribunda* occur with *Melaleuca linariifolia, Melaleuca nodosa, Melaleuca decora* and *Eucalyptus resinifera*, generally on the Cockle Creek (cc) soil landscape of Matthei (1995). Similar areas occur in sections of the Porters Creek wetland catchment, although here specimens are closest to pure *Angophora inopina*. Ecotonal zones also exist in parts of both the Doyalson (do) and Gorokan (gk) soil landscapes where drainage is generally poor, and there exists a mix of wet and dry species. Often this occurs along the transition from Community 1 to Communities 2 and 3, and is manifested in

Table 1. Indicator species for defined communities supporting *Angophora inopina*.

Growth Form	Species	Community 1	Community 2	Community 3
Canopy	*Angophora costata*	rare		abundant
	Angophora inopina	abundant	common	abundant
	Corymbia gummifera	abundant		
	Eucalyptus capitellata	common		
	Eucalyptus haemastoma	abundant		
	Eucalyptus resinifera			abundant
	Eucalyptus robusta			rare
	Melaleuca decora			rare
	Melaleuca sieberi		common	abundant
Shrub	*Acacia elongata*			abundant
	Acacia longifolia			common
	Banksia oblongifolia	abundant	abundant	
	Banksia spinulosa var. *collina*	abundant		rare
	Epacris obtusifolia		common	rare
	Epacris pulchella	common	rare	
	Gahnia clarkei			abundant
	Grevillea sericea	common	common	
	Hakea laevipes	abundant		
	Hakea teretifolia		abundant	common
	Isopogon anemonifolius	abundant		
	Lambertia formosa	abundant		
	Leptospermum polygalifolium	rare	common	common
	Leptospermum trinervium	common		
	Melaleuca nodosa			rare
	Melaleuca thymifolia		common	abundant
	Persoonia levis	common		
	Petrophile pulchella	abundant		
	Pimelea linifolia subsp. *linifolia*	abundant		rare
	Pultenaea villosa			abundant
Groundcover	*Anisopogon avenaceus*	common		
	Aristida ramosa	common		
	Aristida vagans	common		
	Aristida warburgii	common	abundant	
	Chorizandra cymbaria			common
	Dichelachne micrantha			common
	Echinopogon caespitosus			common
	Entolasia stricta	abundant	rare	common
	Empodisma minus			abundant
	Eragrostis brownii	common	common	
	Hibbertia vestita	abundant		
	Leptocarpus tenax		abundant	common
	Lepyrodia scariosa		common	abundant
	Lindsaea linearis	common	rare	common
	Panicum simile	common	common	
	Patersonia sericea	abundant		
	Ptilothrix deusta	abundant	rare	
	Schoenus brevifolius		abundant	abundant
	Selaginella uliginosa		common	abundant
	Themeda australis	common	common	abundant
	Xanthorrhoea latifolia	abundant		

large areas of sedges, such as *Lepyrodia scariosa* and *Ptilothrix deusta*, in the ground layer. In a small number of locations at Chain Valley Bay and Charmhaven, *Angophora inopina* occurs in open forest dominated by *Eucalyptus racemosa, Corymbia gummifera* and *Eucalyptus capitellata*. Different vegetation types also support *Angophora inopina* in the Karuah and Bulahdelah areas of the North Coast, occurring mostly on Carboniferous sandstones and sediments (Bell 2000).

Community 1: *Eucalyptus haemastoma* Woodland/Forest (Fig. 4)

Description: *Eucalyptus haemastoma* Woodland/ Forest is the most widespread in the sub-region, occurring generally on the Doyalson (do) and Gorokan (gk) soil landscapes of Murphy and Tille (1993), which emanate from Munmorah Conglomerates and the Tuggerah Formation. Variation is principally related to structure and time since last fire, with plots subjected to recent fire (<5 years) generally distinguishable from those of a greater fire-free period. Structure varies from a very low mallee heath (at San Remo, possibly as a result of repeated disturbance over many years), through open woodland–woodland (the vast majority of sites), to open forest. *Angophora inopina* often forms a co-dominant throughout much of the mapped distribution of this type, in association with *Eucalyptus haemastoma* and *Corymbia gummifera*. This vegetation type equates to the Coastal Plains Scribbly Gum Woodland (MU31) of NPWS (2000).

Fig. 4. *Eucalyptus haemastoma* Woodland/ Forest (Community 1) near Gwandalan.

Structure: Canopy: 8–22 m, 20–40 % cover; Mid-storey: 3–5 m, 10–20 % cover; Lower: 0.3–1.5 m, 40–80 % cover.

Canopy: *Eucalyptus haemastoma, Corymbia gummifera, Angophora inopina, Eucalyptus capitellata, Angophora costata*

Shrubs*: Banksia oblongifolia, Banksia spinulosa* var. *collina, Hakea laevipes* subsp. *laevipes, Isopogon anemonifolius, Lambertia formosa, Persoonia levis, Petrophile pulchella, Pimelea linifolia* subsp. *linifolia, Leptospermum trinervium, Xanthorrhoea latifolia* subsp. *latifolia, Xanthorrhoea resinifera*

Low shrubs: *Epacris pulchella, Hibbertia vestita*

Herbs/ Ferns*: Patersonia sericea, Linsaea linearis*

Sedges: *Ptilothrix deusta*

Grasses: *Aristida ramosa, Themeda australis, Aristida vagans, Anisopogon avenaceus, Entolasia stricta*

Community 2: *Hakea teretifolia – Banksia oblongifolia* Wet Heath (Fig. 5)

Description: A low, wet heath with occasional emergents of *Angophora inopina* or *Melaleuca sieberi*. Variation within this type is heavily dependant on soil structure, principally depth to the water table, fire history and the extent of impeded drainage present. Consequently, floristic variation is greater than in other communities. The distribution of *Hakea teretifolia* / *Banksia oblongifolia* Wet Heath is linked to the occurrence of embedded siltstone or mudstone lenses in the Munmorah Conglomerate and Tuggerah Formation within Clifton sub-group geology, and corresponds to part of the Doyalson (do5) and Gorokan (wo3) soil landscapes of Murphy and Tille (1993). *Angophora inopina* here is generally restricted to scattered occurrences, in association with varying densities of *Hakea teretifolia* and *Banksia oblongifolia*. During regional classification studies, this type was not clearly defined, but is probably included within the Coastal Plains Scribbly Gum Woodland (MU31) of NPWS (2000).

Structure: Canopy: 2–4 m, 5–10 % cover; Mid-storey: 0.5–1.7 m, 60–95 % cover; Lower: 0.1–0.3 m, 5–20 % cover.

Canopy: *Angophora inopina, Melaleuca sieberi*

Shrubs: *Hakea teretifolia, Banksia oblongifolia, Epacris obtusifolia, Leptospermum polygalifolium, Grevillea sericea*

Low shrubs: *Epacris pulchella*

Herbs/ Ferns: –

Sedges: *Lepyrodia scariosa, Leptocarpus tenax, Schoenus brevifolius*

Grasses: *Aristida warburgii, Panicum simile, Entolasia stricta, Eragrostis brownii, Themeda australis*

Fig. 5. *Hakea teretifolia – Banksia oblongifolia* Wet Heath (Community 2) near Wyee.

Community 3: *Eucalyptus resinifera – Angophora costata* Sedge Woodland (Fig. 6)

Description: Located in shallow drainage lines high in the catchment, this vegetation type is characterised by a very open canopy and a dense understorey of sedge species. *Eucalyptus resinifera* and *Melaleuca sieberi* typically dominate the canopy, with the occasional *Eucalyptus robusta* and scattered *Angophora inopina*. This type appears to be associated with shallow areas of the Wyong (wy) soil landscape, and/ or parts of the Doyalson (do4) and Gorokan (gk4) soil landscapes. The equivalent regional map unit is Riparian Melaleuca Swamp Woodland (MU42) (NPWS 2000).

Structure: Canopy: 10–20 m, 20–40 % cover; Mid-storey: 3–8 m, 20–40 % cover; Lower: 0.3–1.0 m, 70–100 % cover.

Canopy: *Eucalyptus resinifera, Angophora inopina, Angophora costata, Melaleuca sieberi, Eucalyptus robusta, Melaleuca decora*

Shrubs: *Melaleuca sieberi, Melaleuca nodosa, Pultenaea villosa, Acacia elongata, Acacia longifolia*

Low shrubs: *Melaleuca thymifolia*

Herbs/ Ferns: *Selaginella uliginosa*

Sedges: *Lepyrodia scariosa, Gahnia clarkei, Empodisma minus, Chorizandra cymbaria, Schoenus brevifolius*

Grasses: *Entolasia stricta, Themeda australis, Echinopogon caespitosus, Dichelachne micrantha*

Fig. 6. *Eucalyptus resinifera – Angophora costata* Sedge Woodland (Community 3) near Morisset.

Discussion

Broadly speaking, the Central Coast populations of *Angophora inopina* correlate well with the distribution of Clifton sub-group geology, principally the Munmorah Conglomerates, and approximately 1500 ha of habitat has been mapped on the Central Coast. Sizeable populations in intact and contiguous bushland remain in the Morisset and Wyee areas; this area also supports those stands of the highest quality. In other areas the species has been highly fragmented by urban and rural development, surviving in remnant stands of vegetation within its mapped range (e.g. Morisset, Wyee, Charmhaven).

The most common vegetation community supporting the species is the *Eucalyptus haemastoma* Woodland/ Forest (Community 1), which occupies relatively extensive areas of the Central Coast, principally to the immediate south and west of Lake Macquarie. Within this landscape, smaller areas of *Hakea teretifolia – Banksia oblongifolia* Wet Heath (Community 2) and *Eucalyptus resinifera – Angophora costata* Sedge Woodland (Community 3) occur. To date, development pressures have occurred within these areas, along ridgetops and gentle slopes, particularly in Communities 1 and 2, but also impinging on areas supporting Community 3, which is restricted to shallow drainage lines and subject to catchment and upslope disturbances. In the regional study of NPWS (2000), *Angophora inopina* occurred within the Coastal Plains Smooth-barked Apple Woodland (map unit 30), and the Riparian Melaleuca Swamp Woodland (map unit 42), but was considered a diagnostic species only for map unit 31 (Coastal Plains Scribbly Gum Woodland), supporting the results obtained in the current study. Map unit 31 occupies 4250 ha within the region (NPWS 2000). Combined with the other two minor communities, a conservative estimate of approximately 40120 ha of potential *Angophora inopina* habitat remains in the region, yet only 1655 is protected within formal conservation reserves within the lower Hunter Valley and Central Coast (NPWS 2000).

Extensive areas of coppicing and the mallee habit in *Angophora inopina* may well be a relatively recent response to environmental change. Increased fire frequencies from arson and prescribed burns since European settlement have evidently initiated regular lignotuberous regrowth in some areas, perhaps at the expense of seedling recruitment. For the rare tree *Eucalyptus squamosa*, Dove (1984) and Raine (1990) found that low present- day recruitment, and the presence of mallee forms in most stands, suggested that populations in the Central Coast area are responding to some form of environmental stress. Raine (1990) suggested that energy expenditure toward sexual reproduction was superceded by the need to survive in an adverse environment, as evidenced in low seed production and vegetative (mallee) growth. For the threatened *Eucalyptus camfieldii*, Prober (1985) found that the habitat of this species was typical of that found on Hawkesbury Sandstone ridges within the Sydney region, and was not considered sufficiently unusual to explain its rarity. In contrast to *Eucalyptus squamosa*, fruit and seed production was found to be abundant, with germination occurring between eight and thirty days after sowing. Field observations undertaken by Prober (1985) revealed a general lack of seedlings within *Eucalyptus camfieldii* stands, supporting the earlier notion of Matt and Groves (1980) that mallee eucalypts rarely establish successfully from seed. Davies and Myerscough (1991) also found a similar result with the rare mallee *Eucalyptus luehmanniana* near Sydney, a species which undergoes a mass release of seed following fire events. Prober (1985) pointed towards subtle competitive factors or broad climatic variations (rather than restriction to a scarce habitat) to help explain the rarity of *Eucalyptus camfieldii*. Observations to date on *Angophora inopina* would suggest similar causes of rarity in this species; the work of Tierney (2004) would support this.

Conservation status and management implications

Angophora inopina is known from the Central Coast, and from Port Stephens and Great Lakes LGA's on the mid North Coast of New South Wales. Populations within the Central Coast are disjunct from those on the mid North Coast, separated by the Hunter River estuary and the extensive agricultural and urban landscapes in the lower Hunter Valley. Management of the species should ideally be organised separately for populations on the Central Coast, and on the mid North Coast. A conservation strategy has been drafted by Wyong Shire Council for the southern populations, which incorporates habitat quality information, and employs various conservation criteria to assist in the prioritisation of occupied habitat. A similar strategy is required for the mid-North Coast, where continuing developments are threatening existing habitat.

Small populations occur within Lake Macquarie State Conservation Area, Karuah Nature Reserve and Wallaroo Nature Reserve (Bell 1998, Bell 2001b, Leonard 2001). None of these reserves support more than 1000 plants (unpubl. data) and it is evident that off-park conservation of the species will be required in the long term. On the Central Coast, though a small population exists within Lake Macquarie State Conservation Area, all other occurrences are on Crown or private land. Evidently, a landscape scale approach to conservation of the species is required; on the Central Coast this process would also allow protection of other threatened plant species which occupy similar habitats (e.g. *Cryptostylis hunteriana*, Bell 2001c, *Acacia bynoeana* & *Tetratheca juncea*, pers. obs.).

Management issues for *Angophora inopina* populations on the Central Coast include fire frequency and intensity, rubbish dumping, weed invasion, indiscriminate off-road recreational driving on Crown lands, introgressive hybridisation with *Angophora floribunda* [as is apparent for the threatened *Angophora exul* (Hill 1997); see Potts et al. 2003 for discussion on the risks of hybridisation], and urban and agricultural expansion. As Tierney (2004) has indicated, fire frequency is in itself a significant environmental

variable for this species. He suggests that fire-free periods of at least 15 years are required for seedlings to attain maturity and commence flowering and seed production (although fire-tolerance may be attained at around 7 years, subsequent to which individuals may survive repeated fire). As individual *Angophora inopina* specimens are long-lived, such a fire-free window may only need to occur infrequently for successful recruitment to the population to occur. Many other rare plant species are similarly threatened by inappropriate fire regimes in the wider region (e.g. Auld et al. 1993, Bradstock et al. 1995, Keith 1996).

Anecdotal evidence suggests that invasion by weed species, particularly exotic grasses, may be impacting on the germination of *Angophora inopina* seedlings, and this threat is perhaps the most urgent. Considerable areas of occupied habitat occur within highly fragmented urban and rural-residential land tenures, and area-to-edge ratios are high. In several Central Coast sites with an understorey of invasive grasses (e.g. *Axonopus affinis*), flowering and fruiting of *Angophora inopina* has occurred but very little seedling recruitment is evident (D. Tierney pers. comm.). Studies on threatened and other plants illustrate the threats to germination and establishment posed by exotic species (e.g. Vranjic et al. 2000, Standish et al. 2001), and the process is also listed as a Key Threatening Process on the NSW *Threatened Species Conservation Act 1995*.

Acknowledgements

Wyong Shire Council allocated funds for research into this species, and assisted in map digitising and production. Scott Duncan, Sharon Cummins, Julie Craft and Frank Garofalow from council are thanked for assistance during various stages of the project. Other assistance has been received from Daniel Connolly, Chris Lacey, Allan Raine and Gary Leonard. Vegetation data from previous projects within conservation reserves was used by permission from the NPWS Central Coast and Hunter Districts. Comments on the research report upon which this paper is based were received from Greg Walkerden, Frank Garofalow, Scott Duncan, David Tierney, Robbie Economos, and staff from the NSW National Parks and Wildlife Service, State Forests of NSW, and the Department of Land and Water Conservation. This manuscript has also benefited from constructive comments and discussions from David Tierney, an anonymous reviewer and the publication committee.

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Manuscript accepted 8 February 2005