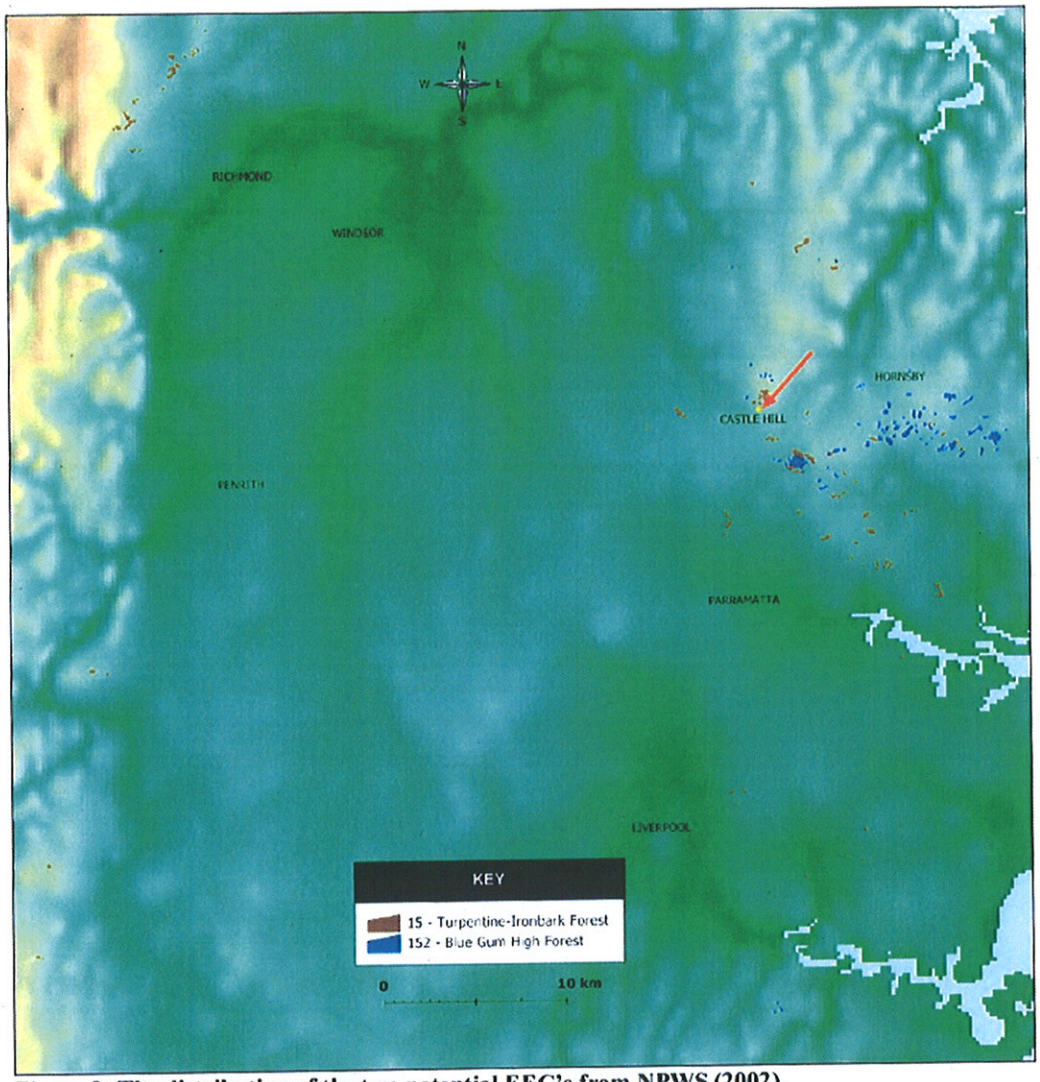

Figure 8: The distribution of the two potential EEC's from NPWS (2002).

While the preceding analysis is based on one .04ha plot taken in the Blue Gum dominated vegetation, the entire area under the Blue Gums was also investigated to determine whether there were any patches where the floristic content and structure was more indicative of one of the EEC's or contained a better representation of native species; none was found.

5.2. History of the site

Figure 9 shows a painting by F.J. Lewin in 1803 looking approximately North East towards Old Northern Road. The approximate position of the subject site was estimated by comparing a contour map with the low ridges and streamlines in the painting. Suffice to say that the entire area was completely cleared at that time irrespective of exactly where the subject site would be located. Figure 10 shows aerial views of the subject site and immediate surrounds for the years 1930, 1955, 1986 and 2005.

In over 200 years a relatively small amount of regeneration has occurred and in the last 77 years the patch of vegetation on the subject site that contains the Blue Gums has been isolated from other areas of revegetation.

The effect of this isolation would have been to stifle any recruitment of native species into the Blue Gum stand of vegetation. It is significant to note that the weed species that dominate the ground and small shrub layer are mostly species that have highly mobile dispersal mechanisms; generally wind or animal dispersed.

Figure 9: A painting of a 'Government Farm' by F. J. Lewin 1803 showing the approximate location of the subject site (red hatch).

In addition to the limits on recruitment, the ground cover under the Blue Gums appears to have been managed by regular slashing which would have a positive effect in limiting the development of the Lantana and other weeds but a negative effect in that any of the emerging native shrub and small tree species would not develop to a reproductive stage.

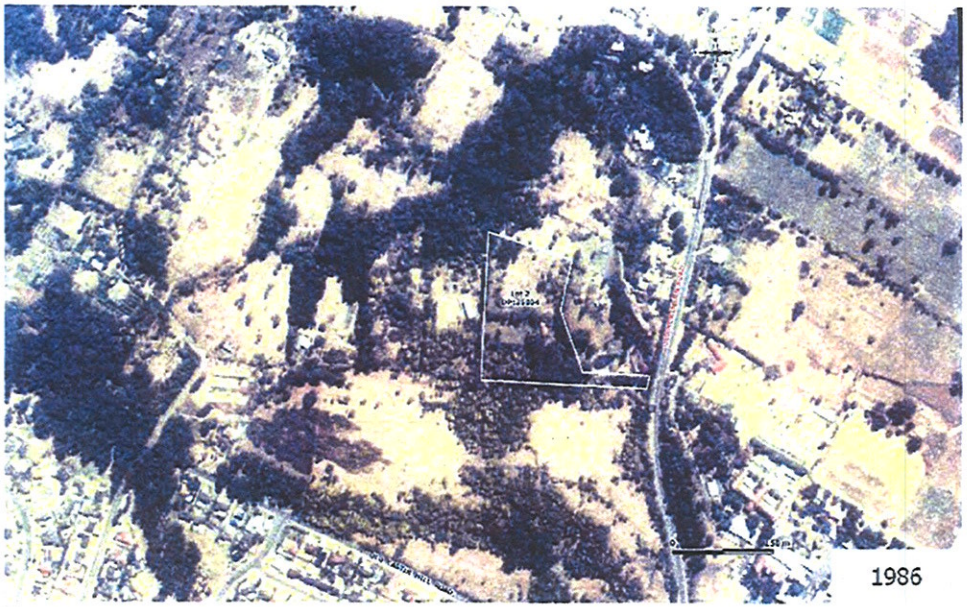

Figure 10: A time series of aerial photographs showing the subject site.

5.3. The 7-part test

Section 5A of the EP&A Act as amended by the NSW *Threatened Species Conservation Amendment Act 2002* requires that a 7-part test of significance and impact be applied where a development proposal has the potential to disturb threatened species and ecological communities. This test has been applied to the two communities potentially occurring on the subject site (Appendix 1).

6. Conclusion and recommendations

An ecological community by definition (EP&A Act 1979) is an "assemblage of species occupying a particular area." Assemblage implies a physical structure of layers made up of floristic content that characterises a particular community and distinguishes it from other possible communities. The legal description of an EEC lies in the determination gazetted by the NSW Scientific Committee in which the floristic content, structure and area of occurrence are described. This description can be supported by other research which can provide further tools to aid in the identification of any particular patch of vegetation as an EEC, or not. In the case of BGHF the work of Tozer (2003) is referenced in the 2007 Scientific Committee Determination. The determination of STIF was in 1998 prior to Tozer (2003) however it is reasonable to refer to this work to enhance understanding of the community.

The area on the subject site that is dominated by Blue Gums meets the environmental and geographic conditions for the occurrence of either Blue Gum High Forest or Sydney Turpentine Ironbark Forest. However the floristic content and structure of this vegetation is severely depleted when compared with the typical species lists in the Scientific Committee determinations and compared with more detailed analysis of the possible communities by Tozer (2003). Because of the very low representation of native species it is not possible to conclude that the area dominated by Blue Gums meets the legal description of either of the possible EECs.

Even though an EEC is technically not present on the site the Blue Gums are indicative of a former presence and of the potential for rehabilitation of one of the two possible EECs. The proposed access road should be able to be designed and constructed in a way that has minimal impact on the area containing the Blue Gums. It is recommended that the area containing the Blue Gums be rehabilitated and that this area be extended down the southern boundary and along the western boundary in order to make connection with the Castle Hill Conservation Area.

Rehabilitation should include weed removal and planting of native species consistent with the species typical of the chosen EEC (BGHF would seem the most appropriate) from the structural layers of ground, shrub and midstorey.

7. References

Benson, D.H. (1992) The natural vegetation of the Penrith 1:100 000 mapsheet *Cunninghamia* 2(4) 541 - 596.

Benson, D.H. & Howell, J. (1990*) Taken for granted: the Bushland of Sydney and its suburbs*. Kangaroo Press: Kenthurst.

Benson, D.H. & Howell, J. (1994) The natural vegetation of the Sydney 1:100 000 map sheet. *Cunninghamia* 3(4): 677-1004.

Fanning, F.D. (2005) 370 Old Northern Road, Castle Hill. Proposed Access Road Flora & Fauna Assessment. A report prepared by Gunninah Environmental Consultants. June 2005.

NPWS (2002). Native Vegetation of the Cumberland Plain - Final Edition. NPWS, Sydney.

Poore, M.E.D. (1955) The use of phytosociological methods in ecological investigations. I. The Braun-Blanquet system. *Journal of Ecology* 43: 226-244

Tozer, M (2003) The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities. *Cunninghamia* 8(1): 1 - 75.

UTM (2005) *Arboricultural assessment comprehensive for proposed driveway 370 Old Northern Road Castle Hill, NSW*. A report prepared by Urban Tree Management for Lanox Pty Ltd & KMSJ Pty Ltd.

8. Appendices

8.1. Appendix 1 the 7-part tests

Blue Gum High Forest

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
Not applicable to the consideration of an endangered ecological community.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,
Not applicable to the consideration of an endangered ecological community.

(c) in the case of an endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
It was determined that no endangered ecological community was present on the subject site and therefore there would be no adverse impact on any EEC.

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,
It was determined that no endangered ecological community was present on the subject site and therefore there would be no adverse impact on any EEC

(d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,
It was determined that no endangered ecological community was present on the subject site and therefore there would be no adverse impact on any EEC

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),
No critical habitat was on the subject site.

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

Not relevant as it was determined that an endangered ecological community was not present on the subject site therefore there would be no adverse impact on any EEC.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.
The following key threatening processes would apply to this proposal:

- The Clearing of Native Vegetation;
- Exotic Vines and Scramblers; and,
- Invasion of Native Plant Communities by Exotic Perennial Grasses;

None of these key threatening processes would impact on any known EEC at the subject site. In general terms these processes can be controlled by targeted management during and after any construction process.

Sydney Turpentine Ironbark Forest

(a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
Not applicable to the consideration of an endangered ecological community.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,
Not applicable to the consideration of an endangered ecological community.

(c) in the case of an endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or
It was determined that no endangered ecological community was present on the subject site and therefore there would be no adverse impact on any EEC

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,
It was determined that no endangered ecological community was present on the subject site and therefore there would be no adverse impact on any EEC

(d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,
It was determined that no endangered ecological community was present on the subject site and therefore there would be no adverse impact on any EEC

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

Not relevant as it was determined that an endangered ecological community was not present on the subject site therefore there would be no adverse impact on any EEC.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

The following key threatening processes would apply to this proposal:

- The Clearing of Native Vegetation;
- Exotic Vines and Scramblers; and,
- Invasion of Native Plant Communities by Exotic Perennial Grasses;

None of these key threatening processes would impact on any known EEC at the subject site. In general terms these processes can be controlled by targeted management during and after any construction process.

8.2. Appendix 2 The final determinations for Blue Gum High Forest and Sydney Turpentine Ironbark Forest.

Blue Gum High Forest in the Sydney Basin Bioregion - critically endangered ecological community listing

NSW Scientific Committee - final determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list the Blue Gum High Forest in the Sydney Basin Bioregion, as a critically endangered ecological community in Part 2 of Schedule 1A of the Act, and as a consequence omit reference to the Blue Gum High Forest in Part 3 of Schedule 1 of the Act. Listing of critically endangered ecological communities is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. Blue Gum High Forest in the Sydney Basin Bioregion is the name given to the ecological community characterised by the species assemblage listed in paragraph 2. All sites are within the Sydney Basin Bioregion.

2. Blue Gum High Forest in the Sydney Basin Bioregion is characterised by the following assemblage of species:
Acmena smithii
Adiantum aethiopicum
Allocasuarina torulosa
Alphitonia excelsa
Angophora costata
Angophora floribunda
Asplenium flabellifolium
Backhousia myrtifolia
Blechnum cartilagineum
Breynia oblongifolia
Calochlaena dubia
Carex maculata
Cissus hypoglauca
Clematis aristata
Clerodendrum tomentosum
Dianella caerulea
Doodia aspera
Elaeocarpus reticulatus
Entolasia marginata
Entolasia stricta
Eucalyptus globoidea
Eucalyptus paniculata
Eucalyptus pilularis
Eucalyptus saligna
Eustrephus latifolius
Ficus coronata
Glochidion ferdinandi var. *ferdinandi*
Glycine clandestina
Hydrocotyle laxiflora
Leucopogon juniperinus

Lomandra longifolia
Marsdenia rostrata
Maytenus silvestris
Morinda jasminoides
Notelaea longifolia forma *longifolia*
Oplismenus aemulus
Oplismenus imbecillis
Oxalis perennans
Pandorea pandorana
Persoonia linearis
Pittosporum revolutum
Pittosporum undulatum
Platylobium formosum
Poa affinis
Polyscias sambucifolia subsp. A
Pratia purpurascens
Pseuderanthemum variabile
Pteridium esculentum
Rapanea variabilis
Smilax australis
Smilax glyciphylla
Tylophora barbata
Viola hederacea

3. The total species list of the community is considerably larger than that given above, with many species present in only one or two sites or in low abundance. The species composition of a site will be influenced by the size of the site, recent rainfall or drought condition and by its disturbance (including fire) history. The number of species, and the above ground relative abundance of species will change with time since fire, and may also change in response to changes in fire regime (including changes in fire frequency). At any one time, above ground individuals of some species may be absent, but the species may be represented below ground in the soil seed banks or as dormant structures such as bulbs, corms, rhizomes, rootstocks or lignotubers. The list of species given above is of vascular plant species; the community also includes micro-organisms, fungi, cryptogamic plants and a diverse fauna, both vertebrate and invertebrate. These components of the community are poorly documented.

4. Blue Gum High Forest is dominated by a tall canopy of eucalypts that may exceed 30 m in height. Its understorey is typically multilayered with a midstorey of mesophyllous shrubs and small trees and a diverse ground layer of herbs, ferns and some grasses. Most stands of the community are in a state of regrowth after past clearing or logging activities, and consequently trees may be shorter, less dense or more dense than less disturbed stands. Blue Gum High Forest is dominated by either *Eucalyptus pilularis* (Blackbutt) or *E. saligna* (Sydney Blue Gum). *Angophora costata* (Smooth-barked Apple) is frequently observed in remnants close to the shale/sandstone boundary, but also occurs infrequently on deep shale soils, as does *A. floribunda* (Rough-barked Apple). *Eucalyptus paniculata* (Grey Ironbark) is typically found on upper slopes. A relatively diverse stratum of small trees is usually present, and includes *Pittosporum undulatum* (Sweet Pittosporum), *Elaeocarpus reticulatus* (Blueberry Ash) and *Allocasuarina torulosa*

(Forest Oak). Shrub species are typically mesophyllous, such as *Breynia oblongifolia* (Coffee Bush), *Pittosporum revolutum,* (Yellow Pittosporum), *Clerodendrum tomentosum, Notelaea longifolia* forma *longifolia* (Large Mock-olive), *Maytenus sylvestris* (Narrowleaved Orange Bark), *Polyscias sambucifolia* subsp. A (Elderberry Panax) and *Rapanea variabilis* (Muttonwood). Mesophyllous species are generally more common in gullies associated with both shale and volcanic soils than slopes and ridgetops. Sclerophyllous species such as *Persoonia linearis* (Narrow-leaved Geebung) and *Leucopogon juniperinum* (Prickly Bearded-heath) occur more frequently closer to the shale/sandstone boundary. The ground stratum is often dense and contains a mixture of herb, grass and fern species including *Adiantum aethiopicum, Entolasia marginata* (Bordered Panic), *Lomandra longifolia* (Spiny-headed Matrush), *Calochlaena dubia* (Common Groundfern), *Dianella caerulea* (Blue Flax Lily), *Pseuderanthemum variabile* (Pastel Flower) and *Oplismenus imbecillis*. Vine species are also frequently present, in particular *Tylophora barbata* (Bearded Tylophora), *Eustrephus latifolia,* (Wombat Berry), *Clematis aristata* (Old Man's Beard) and *Pandorea pandorana* (Wonga Wonga Vine).

5. While no systematic fauna surveys have been carried out across the range of Blue Gum High Forest a number of mammal and bird species listed as threatened in NSW have been recorded as resident or transient in the community. These include the Grey-headed Flying Fox (*Pteropus poliocephalus*), Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*), Glossy Black cockatoo (*Calyptorhynchus lathami*) and the Powerful Owl (*Ninox strenua*).

6. Blue Gum High Forest is typically associated with soils derived from Wianamatta Shale (Tozer 2003), though may occur in adjacent areas underlain by Hawkesbury Sandstone . The community also occurs on soils associated with localised volcanic intrusions, 'diatremes' (Benson and Howell 1994). Typically, Blue Gum High Forest occurs more than 100m above sea level, where rainfall exceeds 1050 mm per annum, although it may be present in sheltered locations with lower rainfall (Tozer 2003). In drier areas and approaching the shale/sandstone boundary, it intergrades with Sydney Turpentine Ironbark Forest, which is currently listed as an Endangered Ecological Community under the TSC Act. Stands that exhibit intermediate characteristics are collectively covered by the Determinations of these communities and may be diagnosed by detailed consideration of the assemblage of species present at the site.

7. Vegetation surveys carried out across the range of Blue Gum High Forest include those of Benson and Howell (1990, 1994) and Tozer (2003). All of these studies describe and map this community as 'Blue Gum High Forest', including map unit 6b 'Tall open-forest: *Eucalyptus pilularis – Eucalyptus saligna*' of Benson and Howell (1994) and map unit 153 of Tozer (2003). In addition, Benson and Howell (1994) map separately that part of this community which occurs on soils associated with diatremes as 'Glen Forest, map unit 6c, i. Tall open-forest: *Eucalyptus saligna*', noting that this vegetation was 'very similar to the Blue Gum High Forest of the north shore [i. e. map unit 6b]'. Blue Gum High Forest belongs to the North Coast Wet Sclerophyll Forests vegetation class of Keith (2004).

8. Blue Gum High Forest is found on the north shore and northern suburbs of Sydney and has been recorded from the local government areas of Lane Cove, Willoughby, Ku-ring-gai, Hornsby, Baulkham Hills, Ryde and Parramatta within the Sydney Basin Bioregion and may occur elsewhere in the Bioregion.

9. Blue Gum High Forest has a very highly restricted geographic distribution, and is currently estimated to cover an extant area of less than 200 ha (Tozer 2003). The distribution comprises a series of small remnant patches, the largest of which is less than 20ha. Highly modified relics of the community also persist as small clumps of trees without a native understorey. All remnants of the community are now surrounded by urban development. Consequently, the distribution of Blue Gum High Forest is severely fragmented. Fragmentation of habitat contributes to a very large reduction in the ecological function of the community.

10. Prior to European settlement, about 200 years ago, Blue Gum High Forest is estimated to have covered an area of approximately 3700 ha (Tozer 2003). Its current extent amounts to less than 5% of this original distribution. The dominant eucalypts of the community live for several hundred years. Blue Gum High Forest has therefore undergone a very large reduction in its geographic distribution within a time span appropriate to the life cycle and habitat characteristics of its component species. Small-scale clearing associated with residential subdivision, road upgrading, extension and maintenance of service easements, etc. pose a threat of ongoing decline in the extent of the community. Clearing of native vegetation is listed as a Key Threatening Process under the Threatened Species Conservation Act 1995.

11. Changes in structure of Blue Gum High Forest have occurred as a consequence of the extensive removal of large old trees. A number of stands of Blue Gum Forests have highly modified understories, in which the native woody component has been largely replaced by woody exotic species or by increased abundance of native and exotic grasses. Continued underscrubbing, frequent burning and mowing may maintain the understorey in an artificially open state and prevent recruitment of species with the community. The loss of large trees removes essential habitat for a range of tree-dependent fauna (Gibbons and Lindenmeyer 1996). The reduction of understorey complexity, through the reduction of native shrub cover, degrades habitat for a range of bird and mammal species (Catling 1991). These processes contribute to a very large reduction in the ecological function of the community.

12. The influx of stormwater, which brings excessive moisture, pollutants and nutrients to the remnant forests from surrounding urban areas, is a significant ongoing threat to the ecological integrity of Blue Gum High Forest. This, together with the legacy of past disturbances and the abundance and dispersal of weed propagules from nearby urban areas, results in the invasion, establishment and spread of weeds (Thomson and Leishman 2005). Problematic weed species in Blue Gum High Forest include the following:

Asparagus asparagoides Bridal Creeper
Cinnamomum camphora Camphor laurel
Lantana camara Lantana
Ligustrum lucidum Large-leaved Privet
Ligustrum sinense Small-leaved Privet
Ochna serrulata
Passiflora edulis Passionfruit
Passiflora subpeltata Passionfruit
Pennisetum clandestunum Kikuyu
Rubus ulmifolius Blackberry
Senna colutioides
Tradescantia fluminensis

'Invasion and establishment of exotic vines and scramblers', 'Invasion of native plant communities by exotic perennial grasses'and 'Invasion, establishment and spread of Lantana (*Lantana camara* L. *sens. lat*)' are listed as Key Threatening Processes under the Threatened Species Conservation Act. The influx of stormwater, pollutants and nutrients, and the invasion of weeds contribute to a very large reduction in the ecological function of the community.

13. Blue Gum High Forest in the Sydney Basin Bioregion is eligible to be listed as a critically endangered ecological community as, in the opinion of the Scientific Committee, it is facing an extremely high risk of extinction in New South Wales in the immediate future, as determined in accordance with the following criteria as prescribed by the Threatened Species Conservation Regulation 2002:

Clause 25
The ecological community has undergone, is observed, estimated, inferred or reasonably suspected to have undergone, or is likely to undergo within a time span appropriate to the life cycle and habitat characteristics of its component species:
(a) a very large reduction in geographic distribution.
Clause 26
The ecological community's geographic distribution is estimated or inferred to be:
(b) very highly restricted,
and the nature of its distribution makes it likely that the action of a threatening process could cause it to decline or degrade in extent or ecological function over a time span appropriate to the life cycle and habitat characteristics of the ecological community's component species.
Clause 27
The ecological community has undergone, is observed, estimated, inferred or reasonably suspected to have undergone, or is likely to undergo within a time span appropriate to the life cycle and habitat characteristics of its component species:
(a) a very large reduction in ecological function,
as indicated by any of the following:
(b) change in community structure
(c) change in species composition
(f) disruption of ecological processes
(g) invasion and establishment of exotic species
(h) degradation of habitat
(i) fragmentation of habitat

Associate Professor Lesley Hughes
Chairperson
Scientific Committee
Proposed Gazettal date: 20/04/07
Exhibition period: 20/04/07 - 15/06/07

References

Benson DH, Howell J (1990) The natural vegetation of the Penrith 1:100 000 map sheet. *Cunninghamia* **2**, 541-596.

Benson DH, Howell J (1990) Taken for granted: the bushland of Sydney and its suburbs. (Kangaroo Press: Sydney).

Catling PC (1991) Ecological effects of prescribed burning practices on the mammals of south-eastern Australia. In: 'Conservation of Australia's forest fauna' (Ed. D Lunney), pp 353-363. (Surrey Beatty and Sons: Sydney).

Gibbons P, Lindenmeyer DB (1996) A review of issues associated with the retention of trees with hollows in wood production forests. *Forest Ecology and Management* **83**, 245-279.

Keith DA (2004) Ocean shores to desert dunes: the native vegetation of New South Wales and the ACT. NSW Department of Environment and Conservation, Sydney.

Thomson VP, Leishman MR (2005) Post-fire vegetation dynamics in nutrient-enriched and non-enriched sclerophyll woodland. *Austral Ecology* **30,** 250-260.

Tozer MG (2003) The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities. *Cunninghamia* **8,** 1-75.

Sydney turpentine-ironbark forest - endangered ecological community listing

NSW Scientific Committee - final determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Final Determination to list the Sydney Turpentine-Ironbark Forest as an ENDANGERED ECOLOGICAL COMMUNITY on Part 3 of Schedule 1 of the Act. The listing of endangered ecological communities is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. The Sydney Turpentine-Ironbark Forest (STIF) is the name given to the plant community that is characterised by the following assemblage of species:
Acacia decurrens
Acacia falcata
Acacia implexa
Acacia longifolia
Acacia myrtifolia
Acacia parramattensis
Allocasuarina torulosa
Angophora costata
Angophora floribunda
Aristida vagans
Billardiera scandens
Breynia oblongifolia
Bursaria spinosa
Centella asiatica
Cheilanthes sieberi
Clematis aristata
Clematis glycinoides
Clerodendrum tomentosum
Commelina cyanea
Corymbia gummifera
Daviesia ulicifolia
Dianella caerulea
Dichelachne rara
Dichondra repens
Dodonaea triquetra
Echinopogon caespitosus
Elaeocarpus reticulatus
Entolasia marginata
Entolasia stricta
Eucalyptus acmenoides
Eucalyptus globoidea
Eucalyptus paniculata
Eucalyptus resinifera
Exocarpos cupressiformis
Glycine clandestina
Goodenia hederacea
Goodenia heterophylla
Hardenbergia violacea
Imperata cylindrica
Indigofera australis
Kennedia rubicunda

Kunzea ambigua
Lepidosperma laterale
Leucopogon juniperinus
Lomandra longifolia
Melaleuca decora
Microlaena stipoides
Notelaea longifolia
Oplismenus aemulus
Oxalis exilis
Ozothamnus diosmifolius
Pandorea pandorana
Panicum simile
Pittosporum revolutum
Pittosporum undulatum
Poa affinis
Polyscias sambucifolia
Pomax umbellata
Poranthera microphylla
Pratia purpurascens
Pseuderanthemum variabile
Rapanea variabilis
Rubus parvifolius
Smilax glyciphylla
Stipa pubescens
Syncarpia glomulifera
Themeda australis
Tylophora barbata
Veronica plebeia
Zieria smithii

2. The total species list of the community is considerably larger than that given in 1 (above), with many species present in only one or two sites or in very small quantity. In any particular site not all of the assemblage listed in 1 may be present. At any one time, seeds of some species may only be present in the soil seed bank with no above-ground individuals present. The species composition of the site will be influenced by the size of the site and by its recent disturbance history. The number of species and the above-ground composition of species will change with time since fire, and may also change in response to changes in fire frequency.

3. The structure of the community was originally forest, but may now exist as woodland or as remnant trees.

4. Characteristic tree species in the STIF are Syncarpia glomulifera, Eucalyptus globoidea, Eucalyptus resinifera, Eucalyptus paniculata, Angophora costata and Angophora floribunda.

5. Species composition varies between sites depending on geographical location and local conditions (e.g. topography, rainfall, exposure).

6. STIF occurs within the local government areas Ashfield, Auburn, Canterbury, Concord, Drummoyne, Leichhardt, Marrickville, Bankstown, Ryde, Hunters Hill, Baulkham Hills, Ku-ring-gai, Hornsby, Parramatta, Bankstown, Rockdale, Kogarah, Hurstville, Sutherland. The area is within the County of Cumberland and

entirely within the Sydney Basin Bioregion.

7. In many of these LGAs particularly in the inner western suburbs, only remnant trees may remain. These may have particular ecological and genetic significance and may be important sources of propagation material for use in rehabilitation projects.

8. STIF typically occurs on areas with clay soils derived from Wianamatta Shale, or shale layers within Hawkesbury Sandstone.
9. Occurrences of STIF may occur on plateaus and hillsides and on the margins of shale cappings over sandstone.

10. STIF is referred to in Benson & Howell 1990 and in UBBS (1997). It includes vegetation described as map unit 9o of Benson (1992) and Benson & Howell (1994).

11. STIF provides habitat for a number of plant species recognised as being of regional conservation significance in UBBS (1997).

These include:
- Acacia stricta
- Arthropodum milleflorum
- Brachychiton populneus
- Chloris truncata
- Danthonia linkii
- Danthonia racemosa
- Daviesia genistifolia
- Einadia nutans
- Einadia polygonoides
- Einadia trigonos
- Elymus scaber
- Glycine microphylla
- Lasiopetalum parviflorum
- Lepidosperma gunnii
- Leucopogon juniperinus
- Marsdenia viridiflora
- Omalanthus stillingifolius
- Opercularia hispida
- Paspalidium criniforme
- Platylobium formosum
- Pomaderris lanigera
- Senecio hispidulus
- Sporobolus creber
- Stipa rudis subsp. nervosa

12. STIF has an understorey that may be either grassy and herbaceous or of a shrubby nature. STIF can have a dense understorey in areas that have not been burnt for an extended period of time.

13. Adjacent communities on sandstone soils are generally part of the Sydney Sandstone Complex (see Benson & Howell 1990).

14. It is estimated that only 0.5 % of the original area of STIF exists in the form of a number of remnants.

15. Only small areas of STIF are presently included in conservation

reserves.
16. Large areas of STIF have been cleared for agriculture and urban development. Remnants are small and scattered. Identified threats include: clearing, physical damage from recreational activities, rubbish dumping, grazing, mowing, weed invasion.

17. In view of the small size of existing remnants, the threat of further clearing and other known threats, the Scientific Committee is of the opinion that Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion is likely to become extinct in nature unless the circumstances and factors threatening its survival or evolutionary development cease to operate and that listing as an endangered community is warranted.

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References

UBBS (1997) Urban Bushland Biodiversity Survey (NSW National Park and Wildlife Service: Hurstville).
Benson, D. & Howell, J. (1990) Taken for granted: the bushland of Sydney and its suburbs. (Kangaroo Press: Kenthurst).
Benson, D. (1992) The natural vegetation of the Penrith 1:100 000 map sheet. Cunninghamia 2(4):541-596.
Benson, D. & Howell, J. (1994) The natural vegetation of the Sydney 1:100 000 map sheet. Cunninghamia 3(4):677-722.