

TERMS OF LICENCE UNDER THE
THREATENED SPECIES
CONSERVATION ACT 1995

LOWER NORTH EAST REGION

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Preamble

Authorisation

This licence is issued by the NPWS to the Forestry Commission of New South Wales and any person carrying out forestry operations identified in the Integrated Forestry Operation Approval (IFOA) under Part 4 of the *Forestry and National Parks Estate Act 1998* of which this licence is Annexure B.

This licence commences on the day on which the IFOA is granted by the Ministers in accordance with Part 4 of the *Forestry and National Park Estate Act 1998* and is to apply to the conduct of the forestry operations covered by the IFOA within the Lower North East Region

This licence authorises the conduct of forestry operations within SFNSW estate within the Lower North East Region, as shown on Map 1 in the IFOA that are likely to result in:

1. Harm to a threatened species (being an animal) or protected fauna;
2. The picking of a threatened species (being a plant) or a protected native plant;
3. Damage to the habitat of a threatened species;
4. Harm to the Barrington Tops Broad-toothed Rat endangered population; or
5. Damage to the habitat of the Barrington Tops Broad-toothed Rat endangered population.

This licence does not authorise the carrying out of an activity that is likely to:

1. Harm an endangered population or an endangered ecological community (as far as animals are concerned) with the exception of the Barrington Tops Broad-toothed Rat endangered population;
2. Result in the picking of a plant that is part of an endangered population or endangered community;
3. Damage critical habitat; or
4. Damage to the habitat of an endangered population or endangered community with the exception of the Barrington Tops Broad-toothed Rat endangered population.

This licence is issued subject to the licence holder complying with the conditions and requirements set out in the licence. A contravention of the terms of this licence makes the person carrying out the forestry operations liable for an offence under the National Parks and Wildlife Act 1974 for eg. harming a threatened species under Section 118A of the National Parks and Wildlife Act 1974.

Intent

The objectives of this licence are to set out the minimum measures to protect threatened species and protect the habitat of threatened species from activities associated with timber harvesting.

The licence sets out habitat protection measures that are to apply across the SFNSW estate in the form of general conditions. Protection of features such as: rainforest, high conservation value old growth forest, habitat trees and riparian habitats make substantial contribution to the conservation of a range of threatened species, protected fauna and protected native plants.

For those species that have been assessed as not being adequately protected by the general conditions of this licence, a series of species-specific conditions are required to ensure significant habitat features are protected around known occurrences of these species.

For those species which are particularly rare or poorly known such that it could not be determined if the general conditions were adequate for the conservation of the species and appropriate species-specific conditions could not be developed, appropriate protective measures will be developed on a case by case basis where these species occur on SFNSW estate.

An integral part of the licence is the requirement for SFNSW to conduct operational and pre-logging and pre-roading surveys to assess presence of species requiring species-specific or site-specific conditions.

Qualifying notes

Notes provided in this licence are in italicised text within parentheses. These notes are provided to assist in the interpretation of the condition. They do not constitute a condition of the licence and, as such, are not enforceable.

<p>AMENDMENT 5 1 March 2013 <i>Preamble modified</i></p>
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Definitions and Abbreviations

Words and abbreviations used in this licence have the meaning provided below, unless otherwise stated in a particular condition of the licence.

“AMG” means Australian Map Grid co-ordinates. This definition continues to apply to any future updated system of geographical co-ordinates.

“Australian Group Selection” refers to a silvicultural practice, which in relation to a tract of forested land has the following elements:

- i. in any one harvesting operation:
 - (a) one or more groups of trees are selected for logging on a part or (where more than one group of trees is selected) parts of the tract, and
 - (b) the area of each group of trees selected for logging, as measured from the outermost crown edges of trees standing on the outer boundary of the group prior to logging, is no more than 0.25 hectares, and
 - (c) the total area selected for logging within the tract, being the sum of each area of each group of trees selected for logging on the tract (measured in accordance with paragraph (b)), is no more than 22.5% of the net harvestable area of the tract; and

(Note to paragraph (b): 0.25 hectares is the area of a square of 50m x 50m).

- ii. once a harvesting operation has been completed, no logging (other than thinning) is carried out again on the relevant part or parts of the tract until at least 3 further harvesting operations (of the kind described in element (i) or involving Single Tree Selection) have been completed on different parts of the tract; and
- iii. there is a period of at least 5 years (and an average of at least 7 years over any 4 consecutive harvesting operations of the kind described in element (i)) between the completion of logging in one harvesting operation of the kind described in element (i) and commencement of another on the tract; and
- iv. logging is carried out with the objective of ensuring that following any 4 consecutive harvesting operations of the kind described in element (i), there remains an area within the tract which has not been logged in any of those operations (or in any Single Tree Selection or thinning carried out during that period), comprising an area of at least 10% of the net harvestable area in existence immediately before commencement of the first of those four operations.

Note 1. The above description of “Australian Group Selection” is consistent with the silvicultural practice commonly referred to as “Australian Group Selection medium”.

Note 2. The expression “tract of forested land” has been used in the above description of Australian Group Selection as a convenient means of referring to any area of forested land in which this silvicultural practice may be carried out. The relevant tract may, for example, comprise the whole, or only a part of, a compartment of State forest; it may occur across more than one compartment; and it may also be comprised of Crown-timber land other than State forest, and consequently not be managed on a compartment based system.)

Note 3: The above description of “Australian Group Selection” is consistent with the silvicultural practice commonly referred to as “Australian Group Selection medium” and the definition contained in the IFOA.)

“Boundary to area ratio” means the length of the boundary of an area relative to the size of the area, expressed as a proportion.

“Bumper trees” means trees used as pivot points for logs being snigged during timber extraction.

“Brush-tailed Phascogale habitat Category 1” means the following Research Note 17 Forest Types:

37, 39, 56, 61, 62, 64, 70, 71, 72, 74, 76, 81, 82, 83, 84, 85, 92, 93.

“Brush-tailed Phascogale habitat Category 2” means the following Research Note 17 Forest Types:

30, 31, 38, 40, 41, 97, 117, 119, 126, 130.

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AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Buffer zone” means a protective area where specified forestry activities may only be conducted if in accordance with the relevant condition.

“Cliff” means a rocky slope greater than 70 degrees steep and greater than three metres in height.

“Commencement date” means the date on which the IFOA is granted by the relevant Ministers in accordance with Part 4 of the FNPE Act.

“Compartment” means an area of forest designated for forestry management purposes, principally for the cutting and removal of timber. In the case of Crown-timbered Land, compartment means an area to which SFNSW conducts, permits or authorises specified forestry activities. A compartment is an area of forest identified by a compartment number and a State Forest name. Compartment boundaries are delineated on SFNSW Geographic Information System (GIS). The term may be used to describe a part of a compartment, a group of compartments or a single compartment covered by a single Harvesting Plan.

“CRAFTI” refers to aerial photograph interpretation undertaken as part of the regional forest assessment for the areas covered by the Forest Agreements for the Lower North East Region.

“Critical habitat” means critical habitat as defined by the TSC Act.

“Critical weight range” or “CWR” refers the following species: Bush Stone-curlew, Black-striped Wallaby, Brush-tailed Phascogale, Spotted-tailed Quoll, Eastern Quoll, Rufous Bettong, Long-nosed Potoroo, Parma Wallaby, Red-legged Pademelon and Brush-tailed Rock Wallaby.

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Crown” means the upper branches of a tree.

“Dam” means a body of water held by a barrier constructed to hold back water, forming a reservoir.

“Daytime” means the time of day between sunrise and sunset.

“Den”, (other than the den of a Spotted-tailed Quoll), means tree hollows and other holes, crevices or fissures in trees into or out of which the subject species is seen entering or leaving. Dens are used by mammals for roosting, sleeping, resting, breeding, raising young and communal congregations.

“Diameter at breast height over bark” or “dbhob” means the measurement of the diameter of a tree, made at a height of 1.3 metres above the ground on the uphill side of the tree, using a diameter tape measured at right angles to the axis of the tree. Where the tree is branched or deformed at 1.3 metres above the ground, the measurement must be taken above this point where the stem becomes more cylindrical.

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Directional felling” means the felling of a tree in such a way that it falls in a pre-determined direction. This is achieved by cutting the tree at a particular angle.

“Drainage line” means a channel down which surface water naturally concentrates and flows. Drainage lines exhibit one or a combination of the following features which distinguish them from drainage depressions:

- i. evidence of active erosion or deposition - e.g., gravel, pebble, rock, sand bed, scour hole, nick points; or
- ii. an incised channel of more than 30 centimetres depth with defined bed and banks;

“Dusk” means that time of the afternoon when the sun is below the horizon however there is still soft light in the sky.

“Early morning” means the time of day between sunrise and up to three hours after sunrise.

AMENDMENT 5
1 March 2013
Definition of
'EPA' added

“EPA” means the Environment Protection Agency.

“Eucalypt feed tree” means mature or late mature individuals of any of the following eucalypt species: white mahogany *E. acmenoides*, *E. umbra*, *E. carnea*; ironbark species *E. siderophloia*, *E. paniculata*, *E. fetgusonii*, *E. placita*, *E. ancophila*, *E. fusiformis*, *E. caleyi*, *E. crebra*, *E. fibrosa*, *E. tetrapleura*, *E. sideroxylon*, *E. ophitica*; swamp mahogany *E. robusta*; forest red gum *E. tereticornis*; bloodwood species *Corymbia spp.*; box species *E. rudderi*, *E. conica*, *E. molucanna*, *E. largeana*, *E. rummeryi* (including yellow box *E. melliodora* and white box *E. albens*); spotted gum species *Corymbia spp.*; mountain gum *E. dalrympleana*; manna gum *E. viminalis*; needlebark stringybark *E. planchoniana*; Tyndale stringybark *E. tindaliae*; red stringybark *E. macrorhyncha*.

“Exclusion zone” means a protective area where specified forestry activities, unless excepted, are

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prohibited under the terms of this licence.

AMENDMENT 5
1 March 2013
Definition of
"FCNSW" added

"FCNSW": means Forestry Corporation of New South Wales.

"First order stream": Refer to Schedule 1 of this licence for definition and determination of stream order.

"Flying-fox camp" means an area where more than a hundred Flying-foxes congregate to roost on tree branches. These camps may contain a single species or more than one species of flying-fox.

"FNPE" means *Forestry and National Park Estate Act* 1998.

"Forest Agreement" means an agreement made under Part 3 of the *Forestry and National Park Estate Act* 1998.

"Forest types" or "FT" means forest type as defined and described in "*Research Note No. 17 Forest types in New South Wales*" *Forestry Commission of New South Wales, Sydney 1989*, and/or mapped on Forestry Commission of New South Wales forest type maps.

"Forestry operation" has the same meaning as the definition in the IFOA under Part 4 of the *Forestry and National Parks Estate Act* 1998.

"Fourth order stream": Refer to Schedule 1 of this licence for definition and determination of stream order.

AMENDMENT 5
1 March 2013
Definition of
'Gliding possum'
added

"Gliding possum" means a possum of a species belonging to the genus *Petaurus*, such as a squirrel glider (*Petaurus norfolcensis*), yellow-bellied glider (*Petaurus australis*) and sugar glider (*Petaurus breviceps*).

"Gross area" means the total area of land within a compartment (in hectares).

"Harvesting machinery" means rubber-tyred skidders, bulldozers and mechanical and other harvesters.

"Harvesting operations" means timber felling (except miscellaneous forestry operations), construction and operation of log dumps, construction and operation of snig tracks, road construction and road re-opening.

"Hazard reduction work" has the same meaning as "bush fire hazard reduction work" as defined in the *Rural Fires Act* 1997.

"Heath and scrub" means areas dominated (greater than 50% crown cover, where crown cover is the area of ground covered by projecting the outline of the crown vertically to the ground) by woody shrubs and graminoids generally less than two metres tall at maturity, but up to seven metres tall. Heath and scrub include, but are not limited to, all areas of FT "heath" (FT no. 223) and "scrub" (FT no. 224).

AMENDMENT 2
23 April 2003
Definition replaced
Ref Appendix E

"High Conservation Value Old Growth Forest" means the following areas of land within the Upper North East Region:

- i. land depicted in the Geographic Information System theme in ESRI grid format called "hcovog2_prctcd" in the sub-directory called "Protected HCVOG" on the CD-Rom, having the volume label "991221_1516 (21 Dec 1999)", and further described in the corresponding metadata on the CD-Rom; and
- ii. "old growth" land depicted in the Geographic Information System theme in ESRI grid format called "ogtoprotect2" in the sub-directory called Additional Protected OG" on the CD-Rom, having the volume label "030423_1132 (23 April 2003) ", and as may be further described on corresponding metadata on the CD-Rom;
- iii. land as depicted in the Geographic Information System Theme in the ESRI Feature Class Format (as current from time to time) called "Assessed_HCVOG".

AMENDMENT 3
17 May 2004
Definition modified
Ref Appendix E

AMENDMENT 5
1 March 2013
Definition of 'High
Conservation
Value Old Growth
Forest' modified

"Hollow-bearing tree" means a live tree in the net logging area where the base, trunk or limbs contain hollows, holes and cavities that have formed as a result of decay, injury or other damage. Such hollows may not be visible from the ground; but may be apparent from the presence of deformities such as burls, protuberances or broken limbs, or where it is apparent the head of the tree has been lost or broken off.

(Note: "Hollow-bearing tree" is also defined in Condition 5.6 (a))

"Incidental browse tree" means a Brushbox, Turpentine, Apple (*Angophora* spp.) or Bloodwood.

AMENDMENT 5
1 March 2013
Definition of
'Hollow-bearing
tree' replaced

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“Integrated Forestry Operations Approval” or “IFOA” means an approval granted under Part 4 of the *Forestry and National Park Estate Act 1998* for the Lower North East Region to which this licence forms a part.

“Known or potential habitat” where it relates to flora means:

- i. a compartment with a record of the species; OR
- ii. within “likely habitat” and within the species’ “distribution”, as described in Schedule 2 of this licence.

“Known habitat” where it relates to fauna means:

- i. the area within a two kilometres radius of a record (except for Spotted-tailed Quoll and microchiropteran bats where the area within a five kilometres radius of a record constitutes known habitat);
- ii. a record referred to in i) above includes, in addition to other types of records, a record of a species in a scat.

“Koala high use area” means an area where any of the following features are located:

- i. Three out of any ten consecutive trees inspected are found to have Koala scats beneath them; OR
- ii. a sighting of Koala; OR
- iii. a tree with more than 20 Koala scats beneath; OR
- iv. any trees with Koala scats of two distinctly different sizes beneath;
AND
- i. where the subsequent star search locates at least an additional three out of any ten consecutive trees inspected as having Koala scats beneath them.

“Koala intermediate use area” means:

- i. the area in a single compartment outside the Koala high use area where a Koala high use area is identified in the compartment; OR
- ii. a single compartment where Koala scats have been detected under two of any ten consecutive trees searched within that single compartment; OR
- iii. a single compartment where a Koala high use area is identified by only three of any ten consecutive trees having Koala scats, and where the Koala high use area indicated by the star methodology does not go beyond the initial ten trees, OR
- iv. Both ii) and iii) above.

“Late afternoon” means the time of day between three hours before sunset and sunset.

“Late mature” means, using the modified Jacobs growth stage assessment, a tree which exhibits the following structural characteristics: Crown shape irregular; a proportion of limbs dead or dying, but not fallen; branch hollows are common, but are small to medium size. Refer to Schedule 3 of this licence.

“Log dump” means an area within a compartment where timber and other forest products are collected for processing and sorting prior to loading onto a truck.

“Mature” means, using the modified Jacobs growth stage assessment, a tree which exhibits the following structural characteristics: Crown opening up with crown limbs healthy; dead branches are few throughout the crown, and when present, are small; few branch hollows, and when present, are very small. Refer also to Schedule 3 of this licence.

a plant “Metapopulation Unit” refers to a geographically discrete part of the plant species’ range. Descriptions of species Metapopulation Units referred to in the licence are provided in Schedule 2 of this licence.

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(Note: Metapopulations are discrete population units within which the dynamics of the populations making up the metapopulations are largely restricted to within the metapopulation. They are isolated from adjacent metapopulations by areas of unsuitable habitat that restricts dispersal of individuals to such a degree to prevent effective recolonisation between metapopulations if suitable habitat is vacated.)

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Mechanical harvester” means a ground-based, tracked or wheeled machine equipped with an attachment containing a cutting device (for example a hydraulically driven disc or saw) for the purpose of felling trees. A mechanical harvester is operated from within a protective cabin and may have the ability to move trees after falling.

AMENDMENT 5
1 March 2013
Definition of
'Mechanised
harvesting
operation' added

“Mechanised harvesting operation” is an operation that involves felling trees using mechanised harvesting machinery rather than an operation that relies on felling trees using a chainsaw.

“Miscellaneous forestry operations” means the felling of timber for the construction of causeways and bridges for the purposes of forest management; OR cutting of posts for neighbour boundary fencing.

“Modelled habitat” means:

- i. For all fauna species, except for ii. below or as otherwise specified, Class 1 and Class 2 modelled habitat* as developed during the Comprehensive Regional Assessment for Lower North East.
- ii. For Masked Owl, Powerful Owl, Eastern Bristlebird, Rufous Scrub Bird, *Philoria* sp. 3 (*richmondensis*), *Philoria loveridgei*, *Philoria kundagungan*, *Mixophyes iteratus* and *Mixophyes fleayi*, Class 1, Class 2 and Class 3 modelled habitat* as developed during the Comprehensive Regional Assessment for Lower North East.
 - * a) as depicted in the spatial data layers of the ESRI Shape files in the sub-directory “CRA_Fauna_Models”, located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive); and
 - b) further described in the corresponding metadata for that spatial data layers located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive).
- iii. For flora species:
 - a) as depicted in the spatial data layers of the ESRI Shape files in the sub-directory “CRA_Flora_Models”, located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive); and
 - b) further described in the corresponding metadata for that spatial data layers located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive).

OR

- i. An appropriate model as agreed jointly by NPWS and SFNSW.

“Monthly advice” means the written advice prepared, or required to be prepared, each month by FCNSW, on forestry operations, as referred to in clause 9A of the IFOA (including Condition 3 (a) of Appendix B of this IFOA).

“NPW Act” means the *National Parks and Wildlife Act 1974*.

“NPWS” means the New South Wales National Parks and Wildlife Service.

“Nest”: A nest includes, but is not limited to, a structure built by birds, or a tree-hollow, or a site on the ground or in a cave used by birds for the purposes of the incubation and/or rearing of young. A nest also includes a site where the actual nest can not be seen or found, however there is clear evidence of breeding nearby and it is considered likely that a nest occurs nearby (ie. within 50 metres).

AMENDMENT 5
1 March 2013
Definition of
'monthly advice'
added

APPENDIX B – LOWER NORTH EAST

AMENDMENT 2
23 April 2003
Definition
replaced
Ref Appendix E

“Net logging area” means, unless otherwise specified, the gross area of a compartment less Preferred Management Priority or subsequent Forest Management Zones and Special Management Zones where timber harvesting is prohibited, protection zones, Ridge and Headwater Habitat exclusion zones, Rainforest, Rainforest exclusion zones, High Conservation Value Old Growth Forest and Rare Non-commercial Forest Types.

“Net survey area” means the net logging area less areas of the following mapped features: inherent hazard level 4 and mapped drainage filter strips (as defined in the relevant Pollution Control Licence), and physically inaccessible areas.

“Nighttime” means the time between sunset and sunrise when it is dark.

“Non-regrowth zone” means all areas to the west of the line within the IFOA area:

- i. depicted in the spatial data layers of the ESRI Shape files called “CRAreg_zone.shp” in the sub-directory “RegrowthZone”, located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive); and
- ii. further described in the corresponding metadata for that spatial data layers located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive).

AMENDMENT 5
1 March 2013
Definition of
'Permanent
stream' omitted

“Outcropping rock cover” means escarpments, scree slopes (ie. slopes covered with small loose stones), and rock outcrops (ie. areas where rocks or exposed boulders cover more than 70% in any 0.1 hectare area).

“Post-logging burning” means burning associated with the cutting and removal of timber which is carried out within 18 months after the timber being cut and removed.

AMENDMENT 2
23 APRIL 2003
Definition
replaced
Ref Appendix E

“Potential habitat” where it relates to fauna means:

- i) “macrohabitat” and “microhabitat” within the species “distribution”, all defined in the document “Habitat of Threatened Species in north-east NSW” as agreed to by NPWS and SFNSW; OR
- ii) in the absence of an agreed “Habitat of Threatened Species in north-east NSW” in (i) above, modelled habitat, OR “macrohabitat” and “microhabitat” within the species “distribution”, as defined in Schedule 4 of this licence.

“Preferred forest types” means Research Note 17 forest types that either (1) contain primary browse species that are listed as the ‘dominant’ species’, ‘dominant stand’ or ‘most common species’ for the forest type; or (2) where primary browse species are referred to as closely associated with the forest type or listed as associated with the forest type, for forest types listed below; and are present in the field at more than 20 trees >30 centimetres dbhob per hectare.

	North Coast	Tablelands
Primary browse as dominant species	30, 45, 47, 60, 62, 64, 65, 67, 74, 81, 85, 92.	120, 131, 136, 138, 140, 148, 150, 151, 152, 153, 155, 156, 159, 160, 163, 168.
Primary browse as associated species	31, 32, 36, 37, 38, 39, 42, 46, 48, 49, 51, 53, 54, 61, 70, 71, 72, 76, 80, 82, 87, 93.	98,110, 111, 112, 113, 114, 122, 141, 142, 154, 158, 161, 164, 167, 172.

“Primary browse tree” means species listed below for the different forest areas.

North Coast	Tablelands
Tallowwood <i>E. microcorys</i>	Tallowwood <i>E. microcorys</i>
Grey Gum <i>E. spp.</i>	Manna Gum <i>E. viminalis</i>
Forest Red Gum <i>E. tereticornis</i>	Messmate <i>E. obliqua</i>
Swamp Mahogany <i>E. robusta</i>	Snow Gum <i>E. pauciflora</i>
	Mountain Gum <i>E. dalrympleana</i>

APPENDIX B – LOWER NORTH EAST

Forest Ribbon Gum *E. nobilis*
Sydney Blue Gum *E. saligna*
New England Blackbutt *E. andrewsii*

The North Coast list of primary browse species applies to forest types: 1 to 26, 30 to 33, 36 to 42, 45 to 54, 60 to 68, 70 to 76, 80 to 88, 92 and 93 as defined in Research Note 17. The Tablelands list of primary browse species applies to forest types: 97 to 131, 136 to 143, 147, 148, 150 to 169, 171 to 178, 180 to 185, 188 to 195, 199, 200, 202 to 210, 211 to 215, 223 to 227 as defined in Research Note 17.

APPENDIX B – LOWER NORTH EAST

“Protected fauna” means those species defined as protected fauna under the *National Parks and Wildlife Act 1974*.

“Protected native plants” means those species listed on Schedule 13 of the *National Parks and Wildlife Act 1974*.

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Protection zone” means a protection zone (hard) and protection zone (soft). (Note: a protection zone is not equivalent to a buffer zone, which is defined separately in this document).

“Protection zone (hard)” means a protective area set aside on each of side of a stream where specified forestry activities, unless excepted, are prohibited.

“Protection zone (soft)” means a protective area adjoining a protection zone (hard) within which modified harvesting practices specified in the licence are permitted whilst minimising impacts to riparian habitat.

“Rainforest” means those areas:

- i. depicted in the spatial data layers of the ESRI Shape files called “lne_rf” in the sub-directory “Rainforest”, located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive); and
- ii. further described in the corresponding metadata for that spatial data layers located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive).

“Rare Non-commercial Forest Types” means those areas:

- i. depicted in the spatial data layers of the ESRI Shape files called “all_rnc” in the sub-directory “Rare_Non_Commercial_Forest”, located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive); and
- ii. further described in the corresponding metadata for that spatial data layers located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive).

“Record”:

- Where the record pertains to fauna, includes an observation of a live or dead individual of a species, or any part of an individual (hair, feathers, skin, bone, teeth or eggs), or a sign that indicates the species’ presence (species’ call heard, tracks, diggings, incisions, species’ scat, raptor pellet, owl pellet, nest, roost or den); that is:
 - i. Recorded on the NPWS Atlas of NSW Wildlife with a record reliability of 1 - 5 (1 = specimen in a public museum; 2 = specimen in other collection; 3 = voucher specimen; 4 = specialist reliability; 5 = standard reliability) and collected in the period 20 years prior to the approval of the Harvesting Plan by the relevant SFNSW Regional Manager;
 - ii. Recorded by SFNSW during pre-logging and pre-roading surveys (as required in condition 8 of this licence), during compartment mark-up surveys (as required in condition 5.2 of this licence), during harvesting operations; OR
 - iii. Any other information about the location of a threatened species held by SFNSW.
- Where the record pertains to flora, includes any part of a plant including, but not limited to, roots, stems, branches, leaves, fruits, seeds and flowers; that is:
 - i. Recorded on the NPWS Atlas of NSW Wildlife with a record reliability of 1 - 5 (1 = specimen in a public museum; 2 = specimen in other collection; 3 = voucher specimen; 4 = specialist reliability; 5 = standard reliability) and collected in the period 20 years prior to the approval of the Harvesting Plan by the relevant SFNSW Regional Manager;

APPENDIX B – LOWER NORTH EAST

- ii. Recorded by SFNSW during pre-logging and pre-roading surveys (as required in condition 8 of this licence), during compartment mark-up surveys (as required in condition 5.2 of this licence), during harvesting operations; OR
- iii. Any other information about the location of a threatened species held by SFNSW.

AMENDMENT 5
1 March 2013
Definition of
'Record' modified

- Where the presence of a fauna species is determined from analysis of hair or scat samples conducted by a suitably experienced person, a result of 'definite' or 'probable' must be counted as a record where it refers to a threatened species listed on Schedule 1 of the *Threatened Species Conservation Act 1995* (TSC Act). A result of 'definite' must be counted as a record where it refers to a threatened species listed on Schedule 2 of the TSC Act.

A record remains valid unless SFNSW and NPWS jointly agree the record is invalid or, in the case of flora records, surveys carried out to the satisfaction of NPWS demonstrates that the plant is no longer at the location or cannot be relocated.

Where a species requiring the application of a species-specific prescription is identified from within a predator scat or pellet, SFNSW may consult with NPWS to determine where the prescription shall be applied.

A record can relate to a single individual or a number of individuals. The definition of record relates to all previously existing and new records.

“Recovery Plan” means a recovery plan as defined under the *Threatened Species Conservation Act 1995* or the *Endangered Species Protection Act 1992*.

“Recruitment tree” means a live tree of a mature or late mature growth stage (using the modified Jacobs growth stage assessment as depicted in Schedule 3) within the net logging area that is not suppressed prior to harvesting and has good potential for hollow development and long term survival.

(Note: “Recruitment tree” is also defined in Condition 5.6 (a))

“Regrowth zone” means all areas to the east of the line within the IFOA area:

- i. depicted in the spatial data layers of the ESRI Shape files called “CRAreg_zone.shp” in the sub-directory “RegrowthZone”, located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive); and
- ii. further described in the corresponding metadata for that spatial data layers located on the CD ROM labelled “Upper North East Region and Lower North East Region Integrated Forestry Operations Approvals Appendix B: Threatened Species Licence” created on 21 December 1999 (held on the DUAP Data Archive and State Archive).

“Relevant Act” means an act of Parliament referred to in section 33 of the *Forestry and National Parks Estate Act 1998*.

“Relevant Licence” means a licence referred to in section 33 of the *Forestry and National Park Estate Act 1998*.

“Ridge and Headwater Habitat” means the land identified in maps provided to EPA for the purpose of condition 4.1 (d) subject to any variations or exceptions noted from time to time as approved by EPA. The latest version of the map, at any given time, will be held by EPA.

“RN 17” or “Research Note 17” means the publication: “*Research Note No. 17 Forest types in New South Wales*” *Forestry Commission of New South Wales, Sydney 1989*.

“Road” means any route used for vehicular access to, and the transport of logs from, a log dump within a compartment.

“Road construction” means the construction of a road where no previous road has existed.

“Road re-opening” means the clearing, scraping or treating of an existing revegetated road where any of the trees growing on the road have a dbhob of 20cm or more.

“Rocky outcrop” means an area where rocks or exposed boulders cover more than 70% of any 0.1 hectare area (30 metres by 30 metres); OR areas with skeletal soils (areas with shallow soils where rocks are exposed), supporting heath or scrub (sometimes with occasional emergent trees); OR a combination

AMENDMENT 5
1 March 2013
Definition of
'Ridge and
Headwater
Habitat' added

AMENDMENT 1
1 Dec 2001
Definition
modified
Ref Appendix E

APPENDIX B – LOWER NORTH EAST

of both. These sites may occur where the geology varies from the surrounding area (eg. rhyolite outcrops). Rocky outcrops include, but are not limited to, all areas of FT “rock” (FT no. 234).

“Roost”: Where the roost relates to a microchiropteran bat tree roost, “roost” includes: a tree or stag where there is clear evidence that a microchiropteran bat has roosted, such as a tree with a hollow at its base within which there is an accumulation of bat excreta; OR a tree where a microchiropteran bat has been seen flying into or out of a hollow, crevice or other hole in the tree. (This definition does not relate to ‘subterranean roost sites’.)

Where the roost relates to a threatened owl roost, “roost” includes a site where an owl has been observed roosting (that is sheltering or resting during the day); OR a site where there is clear evidence that an owl has roosted such as where there are owl pellets, remains of prey, or owl excreta; OR both.

AMENDMENT 1
1 Dec 2001
Definition modified
Ref Appendix E

“Routine road maintenance” means the clearing, scraping or treating of a revegetated road where all trees growing on the road have a diameter at breast height over bark of less than 20cm.

“Sap feed tree” means a living tree that exhibits incisions, including V-notch incisions, made by a gliding possum for the purpose of feeding on exuding sap, which have not been fully occluded by bark or scar tissue at the time of compartment mark-up.

AMENDMENT 5
1 March 2013
Definition of ‘Sap feed tree’ replaced

“Secondary browse tree” means species listed below for the different forest areas with stems with a dbhob of 20 centimetres or greater.

North Coast	Tablelands
Eucalypt species other than primary browse Spotted Gum <i>Corymbia spp.</i> <i>Casuarina</i> and <i>Allocasuarina spp.</i> Broad leaf Paperbark <i>Melaleuca quinquinervia</i>	Eucalypt species other than primary browse Forest Oak <i>Allocasuarina torulosa</i>

The North Coast list of secondary browse species applies to forest types: 1 to 26, 30 to 33, 36 to 42, 45 to 54, 60 to 68, 70 to 76, 80 to 88, 92 and 93 as defined in Research Note 17. The Tablelands list of secondary browse species applies to forest types: 97 to 131, 136 to 143, 147, 148, 150 to 169, 171 to 178, 180 to 185, 188 to 195, 199, 200, 202 to 210, 211 to 215, 223 to 227 as defined in Research Note 17.

“Second order stream”: Refer to Schedule 1 of this licence for definition and determination of stream order.

“SEPP 14” means State Environment Planning Policy No. 14 - Wetlands.

“SEPP 26” means State Environment Planning Policy No. 26 - Littoral Rainforest.

“SFNSW” means State Forests of New South Wales which is the trading name of the Forestry Commission of New South Wales.

“SFNSW estate” means land vested in the control of SFNSW.

“Single Tree Selection” refers to a silvicultural practice, which in relation to a tract of forested land has the following elements:

- i. trees selected for logging have trunks, that in cross-section, measured 1.3 metres above ground level, have a diameter (including bark) of 20cm or more (that is, a diameter at breast height over bark of 20 cm or more); and
- ii. trees are selected for logging with the objective of ensuring that the sum of the basal areas of trees removed comprises no more than 40% of the sum of the basal areas of all trees existing immediately prior to logging within the net harvestable area of the tract.

“Snig track” means a route along which logs are hauled or dragged from the location of felling to a log dump, landing or stockpile.

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Snigging” means the practice of dragging or hauling a log from the location of its felling to a log dump.

“Soaks, seepages and bogs” means a depression in the ground in which water collects, on or below the surface; a place where water oozes slowly out of the ground; or a place where the ground is wet and spongy.

“Species new to science” means a species, sub-species or variety of plant or animal that is uniquely distinct from any other species, sub-species or variety and has not been previously described.

APPENDIX B – LOWER NORTH EAST

“Specified forestry activities” means, unless excepted:

- i. Timber felling (excluding miscellaneous forestry operations);
- ii. Construction and operation of log dumps;
- iii. Construction and operation of snig tracks;
- iv. Road construction (NB. routine road maintenance is not a specified forestry activity);
- v. Road re-opening;
- vi. Commercial collection of firewood;
- vii. Harvesting of tea tree oil;
- viii. Bush fire hazard reduction work; and
- ix. Grazing activities; and
- x. Thinning.

AMENDMENT 5
1 March 2013
Definition of
'Specified forestry
activities' modified

“Spotted-tailed Quoll latrine site” means any site where three or more Spotted-tailed Quoll scats are detected within a five metres radius, or a site where a Spotted-tailed Quoll scat has been noted on more than one occasion within a five metres radius. For the purposes of this licence Spotted-tailed Quoll scats detected on roads will not constitute a latrine site. Once a latrine site has been identified it will be considered as such for the duration of this licence.

“Spotted-tailed Quoll maternal den” means any den which is used by a female Spotted-tailed Quoll with young which the juvenile Spotted-tailed Quoll occupy after becoming free from the teat until independence. For the purposes of this licence any Spotted-tailed Quoll den is considered a maternal den if it is being used during the period June to November, unless it can be demonstrated to the satisfaction of the NPWS that the individual using the den is male or that the female using the den does not have young. Once a maternal den has been identified it will be considered as such for the duration of this licence.

“Spotted-tailed Quoll permanent den” means any den site that is used by Spotted-tailed Quoll on more than one occasion. For the purposes of this licence any Spotted-tailed Quoll den is considered a permanent den unless there is documented evidence that the individual that used the den was a transient animal. Once a permanent den has been identified it will be considered as such for the duration of this licence.

AMENDMENT 5
1 March 2013
Definition of 'Stag'
omitted

AMENDMENT 5
1 March 2013
Definition of
'Statutory
reserves' modified

“Statutory reserves” means lands reserved (or gazetted) under the *National Parks and Wildlife Act 1974* as National Parks, Nature Reserves, Karst Conservation Reserves, Wilderness Areas, Wild and Scenic Rivers and State Conservation Areas and Regional Parks; and lands reserved (or gazetted) as Flora Reserves under the *Forestry Act 1916*.

“Stream” means any stream or watercourse shown on the relevant topographic map(s) for the compartment, from a 1:25,000 map sheet produced by the Land Information Centre (formerly the Central Mapping Authority). Where a 1:25,000 map sheet is not available for the compartment, then the best available scale map sheet produced by the Land Information Centre must be used. Determination of stream order is provided in Schedule 1 of this licence.

AMENDMENT 5
1 March 2013
Definition of
'Suitable habitat
for Broad-Toothed
Rat' added

“Suitable habitat for Broad-Toothed Rat” means land of greater than 0.1 hectares in area with vegetation comprised of heath and sedge/rush communities associated with saturated soil conditions. Typical ground cover is dense and is dominated by *Epacris microphylla*, *Epacris breviflora*, *Gonocarpus micranthus*, *Hakea microcarpa*, *Carex gaudichaudiana*, *Baloskion stenocoleum* (northern forests), *Baloskion australe* (southern forests) and *Deyeuxia gunnian* or any combination of these species (though not exclusively). These areas are frequently associated with but may not be confined to drainage lines, drainage depressions, wetlands and soaks, seepages and bogs.

AMENDMENT 4
7 November 2011
Definition added
Ref Appendix E

“Suitable Habitat for Hastings River Mouse” means land with:

- i. a moderate to dense native groundcover over greater than 90% of a contiguous 10 hectare area; and
- ii. a low boundary to area ratio; and
- iii. scattered refugia in the form of hollow logs, trees with basal cavities, natural burrows or areas of rock.

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Native groundcover for the purpose of this definition consists of any combination of grass (including *Lomandra* sp.), sedge, rush, heath or fern between 10 and 75 cm high usually mixed with a diversity of herbs and forbs.

Suitable Habitat for Hastings River Mouse includes all areas identified as moderate or high suitability habitat under condition 8.8.9A.

“Third order stream”: Refer to Schedule 1 of this licence for definition and determination of stream order.

“Threatened species” means any species of plant or animal listed in Schedule 1 Part 1 (endangered species), Part 4 (presumed extinct) and Schedule 2 (vulnerable species) of the *Threatened Species Conservation Act 1995*.

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Timber logs” means timber products identified in clause 5 (2) of part 1 of the IFOA other than pulp grade timber or low quality timber.

“TSC Act” means the *Threatened Species Conservation Act 1995*.

AMENDMENT 2
23 April 2003
Definition added
Ref Appendix E

“Walk-over” means timber extraction or snigging where disturbance to the existing natural groundcover is minimised and where no snig track construction or blading off is performed.

“Wetland” means a vegetated depression with a seasonal, permanent or intermittent water table at or slightly above the floor of the depression. The vegetation type in a wetland typically indicates a wetter micro-environment than the surrounding country. Wetlands include, but are not limited to, areas of SEPP 14 wetlands and areas of FT “swamp mahogany” (FT no. 30), “paperbark” (FT no. 31), “swamp oak” (FT no. 32), “mangrove” (FT no. 33), “swamp” (FT no. 231), and “water surfaces” (FT no. 235).

Condition 1. Species Considered

1.1 Species Requiring Ameliorative Measures

- a) The conditions of this licence apply to the threatened species of fauna and flora listed in Schedule 5 of this licence, condition 1.2 (a) i. of this licence, and those species listed in Schedule 1 Part 4 of the TSC Act as presumed extinct.
- b) The conditions of this licence also apply to Protected Fauna and Protected Native Plants.

(Note: Schedule 5 of this licence includes tables detailing:

- i. *threatened fauna species that are considered adequately covered by the General conditions;*
- ii. *threatened fauna species that are considered adequately covered by Species-specific conditions;*
- iii. *threatened flora species that require Species-specific conditions; and*
- iv. *protected fauna and protected native plants that require Species-specific conditions.)*

1.2 Species Requiring Site-specific conditions

- a) The following species require the development of Site-specific conditions in accordance with conditions 1.2 (b) and (c) of this licence:
- i. *Litoria castanea, Litoria piperata, Black-breasted Button-quail, Black-throated Finch, Double-eyed Fig Parrot, Eastern Bristlebird, Red Goshawk, Red-tailed Black-Cockatoo, Black-striped Wallaby, Eastern Quoll, maternity roosts of *Miniopterus australis*, maternity roosts of *Miniopterus schreibersii*;*
 - ii. Species to which condition 1.3 (a) applies;
 - iii. Species listed on the TSC Act Schedule 1 Part 4 as presumed extinct; and
 - iv. Threatened species other than those listed in schedule 5 of this licence, and in addition to those species listed in conditions 1.2 (a) i. and 1.2 (a) ii. of this licence recorded within the compartment, or within five kilometres outside the boundary of the compartment, which are likely to be affected by forestry activities.
- b) If, while compiling data pursuant to condition 8.5, SFNSW becomes aware of a record of a species listed in condition 1.2 (a) of this licence within the compartment or within 100 metres outside the boundary of the compartment (or in the case of Eastern Quoll, Red Goshawk, *Litoria piperata* and *Litoria castanea*, within five kilometres outside the boundary of the compartment), the following must apply:
- i. The NPWS must be notified by SFNSW within two working days of SFNSW becoming aware of finding the record to develop an appropriate Site-specific condition.
 - ii. Specified forestry activities must not commence in the compartment until a Site-specific condition has been developed by NPWS and agreed to by SFNSW.
 - iii. SFNSW must consult with NPWS to consider: if the record is valid; if the record is indicative of a permanent territory or regular habitat use; appropriate management actions; and any other relevant matters.
- (Note: NPWS will consult with SFNSW in the development of a site-specific prescription. This prescription must be agreed to within 30 working days of notification, or longer if agreed.)
- c) If a species listed in condition 1.2 (a) of this licence is recorded during the carrying out of specified forestry activities in a compartment, or within 100 metres outside the boundary of the compartment (or in the case of Eastern Quoll, Red Goshawk, *Litoria piperata* and *Litoria castanea*, within five kilometres outside of the boundary of the compartment), the following must apply:
- i. Specified forestry activities must immediately cease within the compartment and within 100 metres outside the boundary of the compartment.

<p>AMENDMENT 5 1 March 2013 Condition 1.2 (a) i) modified</p>

<p>AMENDMENT 5 1 March 2013 Condition 1.2 (a) ii) replaced</p>
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APPENDIX B – LOWER NORTH EAST

- ii. The NPWS must be notified by SFNSW within two working days of the record being made in order to develop an Site-specific condition.
- iii. Within one week of NPWS being notified of the record, NPWS must consult with SFNSW when preparing a preliminary determination on whether specified forestry activities may recommence in the compartment.
- iv. Unless otherwise agreed in writing by NPWS, specified forestry activities must not recommence in the compartment until a Site-specific condition has been developed by NPWS and agreed to by SFNSW.
- v. SFNSW must consult with NPWS to consider: if the record is valid; if the record is indicative of a permanent territory or regular habitat use; appropriate management actions; and any other relevant matters.

AMENDMENT 5
1 March 2013
Condition 1.2 d)
and e) added

- d) A Site-specific condition developed under this condition may specify that it applies to either a single record of the species concerned, or that it applies to all relevant records of the species concerned within a particular geographic area, such as the compartment or the IFOA Region.
- e) Where a Site-specific condition is issued for the IFOA Region it may include requirements for FCNSW to survey for that species.
- f) Any Site-specific condition developed under this condition must be implemented.

(Note: NPWS will consult with SFNSW in the development of a site specific prescription. This prescription must be agreed to by NPWS within 30 working days of notification, or longer if agreed.)

AMENDMENT 5
1 March 2013
Condition 1.3
replaced

1.3 Threatened Species Conservation Act – New Listings

- a) FCNSW must comply with sub-conditions (b) and (c) in respect of a species which is present or likely to be present in the Lower North East Region or in any area likely to be affected by the carrying out of Forestry Operations if:
 - i. the Scientific Committee has made a determination for the provisional listing of the species as endangered or critically endangered on an emergency basis as provided for by Division 4 of the *TSC Act*; or
 - ii. the Scientific Committee has made a preliminary determination that a proposal to insert the species into Schedule 1, 1A or 2 of the *TSC Act* should be supported; or
 - iii. a final determination listing the species as endangered, critically endangered or vulnerable under Schedule 1, 1A or 2 of the *TSC Act* has been published in the NSW Government Gazette; or
 - iv. FCNSW receives a written notification from EPA that a species is new to science and conditions 1.3 (b)-(e) must apply until further notice.
- b) FCNSW must, as far as is reasonably practicable, mitigate any adverse effect of forestry operation on animals or plants of the species and develop Site-Specific Conditions for the species in accordance with condition 1.2;
- c) In determining, for the purposes of condition 1.3 (b), how to mitigate or minimise any adverse effect of forestry operations on animals or plants of the species concerned, FCNSW must be guided by any relevant advice provided by EPA.
- d) In this condition 1.3 “adverse effect” in relation to a species (or an animal or plant of a species): includes:
 - i. harm to;
 - ii. the picking of; or
 - iii. damage to any habitat of;the species concerned (or an animal or plant of the species concerned).
- e) Condition 1.3 (b) continues to apply until:
 - i. with respect to a species to which condition 1.3 (b) i. applies - a notice is published in the NSW Gazette to the effect that the Scientific Committee has made a final determination that

APPENDIX B – LOWER NORTH EAST

- the species should not be listed in Schedule 1, 1A or 2 of the *TSC Act* or 12 months has passed since the provisional listing, whichever occurs first;
- ii. with respect to a species to which condition 1.3 (a) ii. applies - a notice is published in the NSW Gazette to the effect that the Scientific Committee has made a final determination not to insert the species in Schedule 1, 1A or 2 of the *TSC Act*;
 - iii. with respect to a species to which condition 1.3 (a) iii. applies – a determination is published in the NSW Gazette to omit the species from Schedule 1, 1A or 2 of the *TSC Act*;
 - iv. with respect to a species to which condition 1.3 (a) iv. applies - FCNSW receives a notice from EPA indicating that the notice given under condition 13.1 (a) iv. no longer applies.
- f) For the sake of clarity, in the event that a species to which condition 1.3 (a) i. or ii. later becomes a species to which condition 1.3 (a) iii. applies, condition 1.3 (b) will continue to apply despite condition 1.3 (e) i. and iii..

Condition 2. General and Transitional provisions

2.1 General

- a) This licence has effect from 1 January 2000 to 31 December 2018.
- b) Where the application of these conditions results in twenty percent or more of the area of net logging area of a compartment being made unavailable because of exclusion zones, SFNSW may request that NPWS review the conditions applying to that compartment. Areas retained in lieu of conducting pre-logging and pre-roading surveys as described in condition 7 (b) of this licence must not be counted towards the twenty percent. In compartments where exclusion zones have been retained under condition 6.9.2 of this licence (Large Forest Owl Landscape Approach), a maximum of 3% of the area specifically retained in the compartment as owl exclusion zones can be counted towards the twenty percent. Areas of the net logging area that are made unavailable due to the prohibition of new roads or snig tracks through High Conservation Value Old Growth Forest can be included in calculations towards the 20% threshold.
- c) All specified forestry activities and miscellaneous forestry operations must be conducted in accordance with the conditions of this licence.
- d) All specified forestry activities and miscellaneous forestry operations to which this licence applies must be carried out in a competent and reasonable manner.
- e) SFNSW must ensure that all employees, contractors, sub-contractors, agents or SFNSW licensees engaged in any aspect of specified forestry activities or miscellaneous forestry operations covered by this licence understand the conditions applying to the specified forestry activities or miscellaneous forestry operations prior to their involvement in those activities.
- f) SFNSW must ensure that a SFNSW employee is present at each compartment while harvesting operations are occurring under this licence for the purposes of ensuring compliance with this licence, for at least the equivalent of one full working day per week per harvesting operation.
- g) Where there is a conflict between the conditions of this licence and the documents with which this licence requires compliance, the conditions of this licence prevail.
- h) Where there is a conflict between the conditions set out in this licence and the conditions set in any other relevant licence issued under the *Forestry and National Parks Estate Act 1998* SFNSW must consult with the NPWS and the agency responsible for the administration of the relevant legislation to resolve the conflict. Specified forest activities in the compartment where the conflict has occurred must cease until the conflict has been resolved.
- i) Where a record has been on the NPWS Atlas of NSW Wildlife for greater than ten years, it may be reviewed by SFNSW as to whether it can be omitted from triggering requirements for protective measures. SFNSW must consult with NPWS in conducting this review. This review must consider:
 - i. Original collection information;
 - ii. Subsequent surveys or records;
 - iii. Species Life History;

APPENDIX B – LOWER NORTH EAST

- iv. Relevant research; and
- v. Distribution.
- j) Where a review of a NPWS Wildlife of NSW Atlas record greater than ten years old is undertaken by SFNSW in accordance with Condition 2.1(i) above, SFNSW must obtain approval in writing from NPWS prior to the rejection or acceptance of the record.

(Notes: Where a condition of this licence requires a matter to be notified to the NPWS, approved by the NPWS, or some other action by the NPWS, then NPWS means the NPWS Manager, Conservation Planning and Programs, Northern or his or her delegate, unless stated otherwise. Condition 2.1 (h) refers to conflict between conditions set out in this licence and conditions of Pollution Control Licence administered by the Environmental Protection Authority and Threatened Fish Species Conservation Protocols administered by New South Wales Fisheries.)

2.2 Transitional provisions

- a) The following definition applies for the purpose of this condition:
“Amendment” means any amendment made to this licence under *Forestry and National Park Estate Act 1998 s. 31*.
- b) Transitional provisions taking effect following an Amendment are contained in schedule 11 of this licence.

AMENDMENT 5
1 March 2013
Condition 2.2 (a)
replaced

2.3 Accidental felling of trees

- a) For the purposes of this licence, a tree is accidentally felled into an area such as an exclusion zone only if it is apparent that:
 - i. techniques of directional felling were used in an attempt to fell the tree away from the area; or
 - ii. an attempt was made using some other method (such as a mechanical harvester) to fell the tree away from the area.
- b) However, a tree is not accidentally felled into the area if the person responsible for the felling of the tree knew, or could reasonably have been expected to know, that the tree would fall into the area.

AMENDMENT 2
23 April 2003
Condition 2.3
added
Ref Appendix E

Condition 3. Planning Documentation

- a) SFNSW must prepare planning documentation that demonstrates that operational planning has taken account of the requirements of the conditions of this licence. This must include showing all exclusion zones, buffer zones and protection zones on the relevant harvesting plan operational map, except where the scale of the map does not allow small area features to be adequately represented; in which case the location of the zone should be adequately indicated. The harvesting plan operational map legend must, to the greatest extent practicable, indicate to which feature or species the exclusion or buffer zones relates.
- b) The Harvesting or Operational Plan must state which Species-specific conditions will be applied in the area of operations.
- c) The Harvesting or Operational Plan must contain the Site-specific conditions relevant to the area of operations as approved by and provided in writing by NPWS (as per condition 1.2 of this licence).
- d) The Harvesting or Operational Plan and any relevant planning documentation must be kept on file at the relevant SFNSW Regional Office.
- e) All the requirements of conditions 3 (a), (b), (c) and (d) of this licence, including any variations approved by NPWS, must be met prior to specified forestry activities commencing in the compartment.
- f) All records, documentation and registers required by this licence must be kept for at least three years after the action or event took place in respect of which the record has been created.
- g) All records, documentation and registers must be kept in a legible form.

AMENDMENT 2
23 April 2003
Condition 3(a)
replaced
Ref Appendix E

- h) Copies of records, documentation and registers requested in writing by NPWS must be received by the nominated NPWS office within ten working days of the request, unless otherwise agreed.

Condition 4. Reporting and Information Requirements

4.1 Provision of Data to NPWS

SFNSW must provide the NPWS with:

AMENDMENT 2
23 April 2003
Condition 4.1a)
replaced
Ref Appendix E

- a) Harvesting Plans or Operational Plans, approved by the relevant FNSW Regional Manager or Planning Manager, Pre-logging and Pre-roading Survey Reports, registers and maps (including electronic Geographic Information System themes and metadata) showing exclusion zones and protection zones, as requested by EPA within ten working days of the request. These can be provided as hard copy or electronically.
- b) FCNSW must provide a colour copy of the operational and location map in accordance with Clause 9A (14 – 16) of the non licence terms of the IFOA..
- c) FCNSW must give the monthly advice to EPA in accordance with the requirements set out in clause 9A of the non-licence provisions of the IFOA and must undertake operations in compliance with the obligations in clause 9A of the non licence provisions.
- (i) For the avoidance of doubt, full compliance with the obligations in clause 9A of the non-licence provisions of the IFOA is an essential condition of this licence.
- (ii) FCNSW is only required to, and may only, submit one monthly return in satisfaction of this clause and any other requirements to submit a monthly return under any other clause in the IFOA. Any monthly advice received by EPA for any given month will be taken to be the monthly advice for the purpose of this clause and any other clause under the IFOA requiring the submission of a monthly return.
- d) Maps at an appropriate scale showing the location of Ridge and Headwater Habitat (as per Condition 5.8 of this licence) within the Lower North East Region by 31 July 2000. Where this mapping has been subsequently amended with the approval of EPA (in accordance with condition 5.8 (g)), amended Geographic Information System themes and metadata must be provided to EPA within 21 days of the amendment.
- e) Records suitable for the NPWS Atlas of NSW Wildlife for all threatened species recorded on SFNSW estate. These must be forwarded by agreed electronic means to NPWS Head Office GIS Unit at three monthly intervals. These data should be provided prior to specified forestry activities commencing in the area surveyed.
- f) Information held within a register of non-compliance. Each SFNSW Regional Manager responsible for the land to which this licence applies must keep a register of every incident of non-compliance with the conditions of this licence. The register must contain the following information known to SFNSW:
- i. the date, time and duration of the non-compliance;
 - ii. the date upon which SFNSW became aware of the non-compliance;
 - iii. the exact location of the non-compliance, either marked on the operational map or in the form of Australian Map Grid co-ordinates;
 - iv. the name of the person who caused the non-compliance;
 - v. the nature of the non-compliance;
 - vi. the reasons for the non-compliance;
 - vii. whether the non-compliance resulted in any environmental harm;
 - viii. any remedial action taken by SFNSW or any other person in relation to the non-compliance and the dates upon which it was taken;
 - ix. any disciplinary action taken by SFNSW against any of its contractors, employees, licensees or agents and the dates upon which it was taken;

AMENDMENT 5
1 March 2013
Conditions 4.1 a),
b), c) and d)
replaced

AMENDMENT 5
1 March 2013
Condition 4.1 f)
modified

APPENDIX B – LOWER NORTH EAST

- x. any measures taken or proposed to be taken to prevent or mitigate the recurrence of such a non-compliance;
- xi. the name of the Supervising Forestry Officer that was responsible for the supervision of SFNSW staff and other people involved in the forestry operation that caused the non-compliance;
- xii. a full report from the officer causing the non-compliance; and
- xiii. what pre harvesting audit and post harvesting audit check were carried out to check compliance.

4.2 Availability of Data

- a) Copies of the following documents must be made available for inspection by any person at each SFNSW Regional Office or relevant Operational Centre responsible for land to which this licence applies:
 - i. this licence; and
 - ii. all planning documentation and registers relating to harvesting operations, including Harvesting and Operational Plans and Site-specific conditions.
- b) Copies of all planning documentation for harvesting operations which are the responsibility of the SFNSW Regional Office or relevant Operational Centre must be made available to any person for photocopying at a reasonable cost.
- c) Condition 4.2 (a) does not apply where SFNSW has received a direction in writing from NPWS that certain specified documents that reveal the location of a threatened species are not to be disclosed.
- d) SFNSW shall not disclose or provide any person not directly involved in the planning or the conduct of the specified forest activities with any documentation or information for which a notice under condition 4.2 (c) has been issued.

Condition 5. General conditions

5.1 Operational Requirements

- a) For all exclusion zones implemented under the conditions of this licence the following must apply (except where otherwise indicated in this licence):
 - i. All specified forestry activities are prohibited in exclusion zones. In the case of exclusion zones surrounding wetlands, except for SEPP 14 wetlands, harvesting of tea tree oil is permitted as per conditions 5.9 Wetlands and condition 5.19 Tea Tree Protection of this licence.
 - ii. Trees must not be felled into exclusion zones (except where expressly permitted by another condition of this licence). If a tree accidentally falls into an exclusion zone, then no part of that tree can be removed, except as referred to in condition 5.1 (a2).
 - iii. Harvesting machinery is prohibited from operating in exclusion zones, except for:
 - 1. road re-opening and routine road maintenance;
 - 2. the construction and operation of roads and snig tracks in accordance with conditions 5.1 (b), 5.3 (i), 5.4 (e), 5.5 (i) and 5.7 (r to u); and
 - 3. the traversing of exclusion zones on existing roads; and
 - 4. in the case of exclusion zones identified in conditions 5.8, 5.11, 5.13, 5.14, 6.1 – 6.10, 6.12 – 6.18, 6.20 – 6.25 and 7.0 (b) accessing trees in the net logging area using harvesting machinery where:
 - i. the technique of directional felling could not be used to fall a tree that is outside the exclusion zone (and within the net logging area) away from the zone; and

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23 April 2003
Condition 5.1a)
replaced
Ref Appendix E

APPENDIX B – LOWER NORTH EAST

- ii. the tree contains a timber log; and
 - iii. the only practicable method of felling that tree is to enter the exclusion zone with harvesting machinery and fell the tree; and
 - iv. the tree is felled away from the exclusion zone; and
 - v. the wheels or tracks of the machinery remain wholly within 5 metres of the boundary of the exclusion zone with the net logging area; and
 - vi. the use of the harvesting machinery only involves the use of walkover techniques and minimises to the greatest extent practicable skewing of machine tracks; and
 - vii. the harvesting machinery operates with any blades, rippers or similar attachments positioned so that they do not disturb the ground, vegetation or soil.
- a1) Condition 5.1 (a) is not breached where a tree is accidentally felled into an exclusion zone.
- a2) An accidentally felled tree may be removed from the exclusion zone despite condition 5.1 (a), but only if this is expressly permitted by another condition of this licence applying to the exclusion zone.
- a3) Harvesting machinery that has entered an exclusion zone for the purpose of accessing trees in the net logging area (under condition 5.1 (a) (iii)) may also be used to remove any tree that has been felled into the exclusion zone in accordance with another condition of this licence (such as condition 6.13 (Hastings river mouse), condition 6.15 (Spotted-tailed Quoll) and condition 6.16 (Squirrel Glider)) or that is otherwise permitted to be removed (such as an accidentally felled tree) from the zone.
- a4) However, the wheels or tracks of the harvesting machinery may not (to any significant extent) be repositioned or moved solely for the purpose of removing the tree. In other words, they may be repositioned or moved only if this is necessary for a purpose related to accessing trees in the net logging area. For the avoidance of doubt, the restrictions on the operation of the harvesting machinery set out in condition 5.1 (a) (iii) (such as the wheels or the tracks remaining within 5 metres of the boundary of the exclusion zone) apply to the operation of the machinery when removing the tree.
- b) The construction, reopening and operation of tracks used for the purposes of snigging and roads in exclusion zones implemented under the following conditions 5.13 Bird Nest and Roost Site Protection, 5.14 Bat Roost Protection, 6.1 Pouched Frog, 6.2 Green and Golden Bell Frog, 6.3 Giant Barred Frog, Fleay's Frog, Stuttering Frog, 6.4 Philoria spp, 6.4 A Green-thighed Frog, 6.4 B Littlejohn's Tree Frog, 6.7 Albert's Lyrebird, 6.8 Marbled Frogmouth, 6.9 Powerful Owl, Masked Owl, Barking Owl, 6.10 Rufous Scrub-bird, 6.12 Brush-tailed Phascogale, 6.13 Hastings River Mouse, 6.14 Koala, 6.15 Spotted-tailed Quoll, 6.16 Squirrel Glider, 6.17 Yellow-bellied Glider, 6.18 Wombat, 6.20 Golden-tipped Bat, 6.22 Threatened Flora, 6.23 Threatened Flora, 6.24 Threatened Flora, 6.25 Threatened Flora, 6.26 Threatened Flora and 6.28 Threatened Flora is only permitted with the prior written approval of the NPWS. Matters that SFNSW must address in order to seek NPWS approval are detailed in Schedule 6 of this licence.
- c) An approval granted under condition 5.1 (b) may be issued subject to conditions. The conditions that form part of that approval also form part of the conditions of this licence. NPWS may apply conditions for the mitigation or amelioration of impacts as it determines appropriate.
- d) Buffer zones must be managed in accordance with the relevant conditions in this licence.
- e) All distances must be measured on the ground independent of slope.
- f) All exclusion zone and buffer zone boundaries must be marked in the field, except where specified forestry activities will not come within 50 metres of such boundaries. The outer edge of lines shown on the map is considered to represent the boundary of the mapped feature when marking the feature in the field.
- g) Subject to the statutory requirements under the *Rural Fires Act 1997*, hazard reduction work must not be conducted in exclusion zones and buffer zones.
- h) Marking-up must be conducted at least 100 metres in advance of harvesting operations, road construction and road re-opening operations (unless otherwise specified in this licence) so relevant

AMENDMENT 2
23 April 2003
Condition 5.1b)
replaced
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 5.1 b)
modified

APPENDIX B – LOWER NORTH EAST

exclusion and buffer zones can be implemented prior to harvesting, road construction and road re-opening occurring.

- i) SFNSW must develop a standard tree marking-up code to apply to all operations, unless specifically excluded, by 30 June 2000. The code must include, but not be limited to, tree marking criteria for the following: exclusion zone boundaries, buffer zone boundaries, hollow-bearing trees, recruitment trees, eucalypt feed trees, Yellow-bellied Glider and Squirrel Glider sap feed trees.
- j) Where a provision in this licence allows the re-opening or the construction of a road or snig track that provision is also taken to authorise the use of the road, or use of tracks for the purposes of snigging, unless that use is specifically prohibited or restricted.

5.2 Compartment Mark-up Surveys

5.2.1 General Requirements

- a) An adequately trained person must conduct a thorough search for, record and appropriately mark the following threatened and protected species features during or before the marking-up of a compartment:
 - i. Nests and roosts for those species listed in condition 5.13 of this licence;
 - ii. Dens of the following species: Yellow-bellied Glider, Squirrel Glider and Brush-tailed Phascogale;
 - iii. Koala high use and intermediate use areas (see condition 5.2.2 below for requirement);
 - iv. Flying-fox camps;
 - v. Latrine and den sites of the Spotted-tailed Quoll;
 - vi. Distinctive scats (eg. Spotted-tailed Quoll, Koala);
 - vii. Allocasuarina or Casuarina spp. with chewed cones beneath;
 - viii. Yellow-bellied Glider and Squirrel Glider sap feed trees;
 - ix. Microchiropteran bat tree roosts;
 - x. Microchiropteran bat subterranean roosts (caves, tunnels and disused mineshafts);
 - xi. Swift Parrot and Regent Honeyeater feed or nest trees;
 - xii. Wombat burrows (north of the Oxley Highway only);
 - xiii. Permanent soaks and seepages in *Phyloria* spp. Potential habitat;
 - xiv. Threatened flora and protected native plant species likely to occur within the compartment requiring protection under conditions 6.22, 6.23, 6.24, 6.25, 6.26 and 6.27 of this licence;
 - xv. Rocky outcrops and cliffs;
 - xvi. Heath and scrub;
 - xvii. Wetlands; and
 - xviii. Suitable Habitat for Broad-toothed Rat.
- b) Searches for threatened species features must be conducted within that portion of the net logging area where harvesting will occur, and within 50 metres outside this area.
- c) Harvesting Operations are prohibited in areas which have not been subject to compartment mark up surveys.
- d) Where any of these features are found, the feature must be recorded, the Harvesting Plan, including the Operational map, must be amended accordingly and the appropriate condition applied.

5.2.2 Koala Mark-up Searches

- a) In compartments which contain preferred forest types, marking-up must be conducted at least 300 metres in advance of harvesting operations.

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1 March 2013
Condition 5.2.1 a)
and b) replaced

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- b) During the marking up of the compartment, an adequately trained person must inspect trees at ten metres intervals. Primary browse trees must be inspected. In the event that there are no primary browse trees, secondary browse trees must be inspected. In the event that there are no primary browse trees or secondary browse trees, other trees and incidental browse trees must be inspected. Inspections must include thoroughly searching the ground for scats within at least one metre of the base of trees greater than 30 centimetres dbhob.
- c) Koala Star search
- i. A Koala Star search must be conducted when:
 - Three out of any ten consecutive trees inspected are found to have one or more scats beneath them; OR
 - a sighting of Koala; OR
 - a tree with more than 20 scats beneath; OR
 - any trees with scats of two distinctly different sizes beneath.
 - ii. The star search comprises eight transects radiating out from a central point. The central point of the Star must be centred on the feature listed in condition 5.2.2 (c) i. above.
 - iii. A search for Koala scats must be conducted along each of the eight transects. Each transect must be a minimum 100 metres length. In any one 100 metres section of each transect, ten trees must be inspected for scats. Inspections must include thoroughly searching the ground for scats within at least one metre of the base of the tree. Primary browse trees must be inspected, in the event that there are no primary browse trees, secondary browse trees must be inspected. In the event that there are no primary browse or secondary browse trees, other trees and incidental browse trees must be inspected. Trees inspected should be approximately ten metres apart along the transect and should have a dbhob of greater than 30 centimetres.
 - iv. The eight transects must continue for at least 100 metres outside the boundary of any Koala high use area.
 - v. Instead of conducting the eight transects in conditions 5.2.2 (c) ii. and iii. above, the boundary of a potential high use area can be estimated in the field. The area of potential high use must be protected as high use. Eight transects must be conducted for at least 100 metres outside the boundary of the potential high use area. Searches along these transects must be consistent with condition 5.2.2 (c) ii, iii and iv above.
 - vi. **Clause revoked (Amendment 2)**
 - vii. Where a Koala high use area is detected within 50 metres of the boundary of the net logging area, surveys of adjacent habitat on public land must be undertaken. These surveys must include inspecting trees for Koalas and inspecting the base of trees for Koala scats.
 - viii. An inspection of the boundary of the Koala high use area must be made, and any relevant observations should be recorded on data sheets.
 - ix. The Harvest Plan Operational Map must be amended to indicate the location and extent of the Koala high use area.

AMENDMENT 2
23 April 2003
Condition 5.3
replaced
Ref Appendix E

5.3 High Conservation Value Old Growth Forest

- a) Specified forestry activities, except tree felling in accordance with condition 5.3 (b), road and snig track construction in accordance with condition 5.3 (i), and road re-opening, are prohibited within all areas of High Conservation Value Old Growth Forest.
- b) The felling of trees across the boundary of High Conservation Value Old Growth Forest is prohibited except where no more than six (6) trees containing a timber log are felled across the boundary in any 200 metre length of the boundary of the High Conservation Value Old Growth Forest, whatever 200 metre length of boundary is considered.
- c) Condition 5.3 (b) is not breached where a tree is accidentally felled into High Conservation Value Old Growth Forest.
- d) A tree that is accidentally felled into High Conservation Value Old Growth Forest may be removed from the forest but only if the tree contains a timber log. The tree may be removed even if the total

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number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 5.3 (b).

- e) A tree that is felled into High Conservation Value Old Growth Forest under condition 5.3 (b), or felled accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of the forest, or lifted and moved within the forest, using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- f) Harvesting machinery is prohibited within areas of High Conservation Value Old Growth Forest, except for:
 - i. the purpose of routine road maintenance, road and snig track construction in accordance with condition 5.3 (i), and road re-opening; and
 - ii. accessing trees in the net logging area using harvesting machinery where:
 - 1. the technique of directional felling could not be used to fall a tree that is outside the High Conservation Value Old Growth Forest (and within the net logging area) and away from the Forest; and
 - 2. the tree contains a timber log; and
 - 3. the only practicable method of felling that tree is to enter the High Conservation Value Old Growth Forest with harvesting machinery and fell the tree; and
 - 4. the tree is felled away from the High Conservation Value Old Growth Forest; and
 - 5. the wheels or tracks of the machinery remain wholly within 5 metres of the boundary of the High Conservation Value Old Growth Forest with the net logging area; and
 - 6. the use of the harvesting machinery only involves the use of walkover techniques and minimises to the greatest extent practicable skewing of machine tracks; and
 - 7. the harvesting machinery operates with any blades, ripper or similar attachments positioned so that they do not disturb the ground, vegetation or soil.
- g) Harvesting machinery that has entered High Conservation Value Old Growth Forest for the purpose of accessing trees in the net logging area (under condition 5.3 (f)) may also be used to remove any tree that has been felled into the Forest under condition 5.3 (b) or accidentally.
- h) However, the wheels or tracks of the harvesting machinery may not (to any significant extent) be repositioned or moved solely for the purpose of removing the tree. In other words, they may be repositioned or moved only if this is also necessary for a purpose related to accessing trees in the net logging area. For the avoidance of doubt, the restrictions on the operation of the machinery set out in condition 5.3 (f) (ii) (such as the wheels or tracks remaining within 5 metres from the boundary) apply to the operation of the machinery when removing the tree.
- i) A road and snig track may be constructed, and used in any area that is, or is within, High Value Conservation Old Growth Forest, only where:
 - i. there is no practicable alternative site available for the purposes of the construction; and
 - ii. prior to the construction, the SFNSW Regional Manager that is responsible for managing the land on which the construction is proposed to be carried out (or a more senior officer), has prepared a report addressing the matters in Schedule 6 of this licence and has authorised the construction in writing; and
 - iii. all practicable measures are taken to minimise any adverse impacts of the construction on the environment; and
 - iv. such areas are not in exclusion zones relating to threatened species referred to in condition 5.1 (b) unless carried out in accordance with condition 5.1 (b).
- j) A copy of the written approval of the SFNSW Regional Manager which addresses the matters raised in Schedule 6 of this licence must be faxed to NPWS, as soon as possible after the approval has been

AMENDMENT 5
1 March 2013
Condition 5.3 i) ii.
omitted

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issued.

- k) In the construction and the operation of snig tracks in High Conservation Value Old Growth Forest in accordance with condition 5.3 (i), hollow-bearing trees must not be used as bumper trees for moving logs.
- l) Where an exclusion zone referred to in condition 5.1 (b) as it relates to a threatened species is located either wholly or partially within an area of High Conservation Value Old Growth Forest, then SFNSW is only permitted to construct roads and snig tracks in accordance with condition 5.1 (b).
- m) The boundary on the ground of High Conservation Value Old Growth Forest must be identified using the line work as depicted:
 - i. in the Geographic Information System theme in ESRI grid format called “hcovog2_prtctd” in the sub-directory called “Protected HCVOG” on the CD-Rom having the volume label “991221_1516 (21 Dec 1999)” and held by Resource and Conservation Division, and further described in the corresponding metadata on the CD-Rom; and
 - ii. in the Geographic Information System theme in ESRI grid format called “ogtoprotect2” in the sub-directory called “Additional Protected OG” on the CD-Rom having the volume label “030423_1132 (23 April 2003)” and held by Resource and Conservation Division, and as may be further described on corresponding metadata on the CD-Rom.
- n) On Crown-timber lands that have not previously been assessed to identify High Conservation Value Old Growth Forest for the purpose of this approval, such as traveling stock reserves, lands acquired by the Forestry Commission of New South Wales, and purchase-tenure lands:
 - i. the process for the identification of High Conservation Value Old Growth Forest must be developed by FCNSW within 12 months of the commencement date of the amendment to this approval. The final process, and any subsequent amendments to the process, must be approved by the EPA. Once finalised, the process must be made publicly available.
 - ii. once the process is approved it must be applied to those lands and the boundary of such areas must be mapped; and
 - iii. the mapped High Conservation Value Old Growth Forest boundaries must be maintained as a Geographic Information System theme in ESRI Feature Class format called "Assessed_HCVOG" which must be updated and provided to the EPA prior to specified forestry activities being undertaken on those lands.

AMENDMENT 3
17 May 2004
condition 5.3(M)
modified
Ref Appendix E

5.4 Rainforest

- a) Specified forestry activities, except road and snig track construction in accordance with condition 5.4 (e), and road re-opening, are prohibited within all areas of Rainforest and exclusion zones around warm temperate Rainforest.
- b) A 20 metres wide exclusion zone must be implemented around all areas of warm temperate rainforest, as defined by RN 17 and mapped on Forestry Commission of New South Wales Forest Type maps.
- c) Trees must not be felled into Rainforest and exclusion zones around warm temperate Rainforest referred to in condition 5.4 (a) and (b) above. If a tree falls into an area of Rainforest or a Rainforest exclusion zone, then no part of that tree can be removed from that area.
- c1) Condition 5.4 (c) is not breached where a tree is accidentally felled into rainforest or an exclusion zone around warm temperate Rainforest.
- c2) Despite condition 5.4 (c), where a tree that is accidentally felled into a Rainforest and or an exclusion zone around warm temperate Rainforest in the course of a harvesting operation may be removed, but only if the tree contains a timber log. For the avoidance of doubt, the whole of the tree (subject to condition 5.4 (c3) (i)) may be removed even though the timber product that any part of the tree will produce is not a timber log.
- c3) The following rules apply to the removal of the tree:

AMENDMENT 2
23 April 2003
Condition 5.4c1-
c2) added
Ref Appendix E

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- i. the crown must be cut off from the trunk and left where it has fallen except where the whole of the tree is lifted out of, or lifted and moved within, the Rainforest or exclusion zone using a mechanical harvester;
- ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

(Note: NPWS does not intend to take proceedings where SFNSW can demonstrate that the tree was accidentally felled into Rainforest. The tree will not be considered to have been accidentally felled in the felling is a result of poor judgement on the part of the faller.)

- d) Harvesting machinery is prohibited within areas of Rainforest, except for the purpose of routine road maintenance, road and snig track construction in accordance with condition 5.4 (e) and road re-opening.
- e) A road and snig track may be constructed, and used in any area that is, or is within, a Rainforest or an exclusion zone around warm temperate Rainforest, only where:
 - i. is no practicable alternative site available for the purposes of the construction; and
 - ii. prior to the construction, the SFNSW Regional Manager that is responsible for managing the land on which the construction is proposed to be carried out (or a more senior officer), has prepared a report addressing the matters in Schedule 6 of this licence and has authorised the construction in writing; and
 - iii. all practicable measures are taken to minimise any adverse impacts of the construction on the environment; and
 - iv. such areas are not in exclusion zones relating to threatened species referred to in condition 5.1 (b) unless carried out in accordance with condition 5.1 (b).
- f) A copy of the written approval of the SFNSW Regional Manager must be faxed to NPWS, which address the matters raised in Schedule 6 of this licence, as soon as possible after the approval has been issued.
- g) In the construction and the operation of snig tracks in Rainforest in accordance with condition 5.3 (d), hollow-bearing trees must not be used as pivot or bumper trees for moving logs.
- h) Where an exclusion zone referred to in condition 5.1 (b) as it relates to a threatened species is located either wholly or partially within an area of Rainforest, or wholly or partially within an exclusion zones around warm temperate Rainforest, then SFNSW is only permitted to construct roads and snig tracks in accordance with condition 5.1 (b).

AMENDMENT 2
23 April 2003
Condition 5.4e)
replaced
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 5.4 i) ii.
omitted

AMENDMENT 2
23 April 2003
Condition 5.5
replaced
Ref Appendix E

5.5 Rare Non-Commercial Forest Type

- a) Specified forestry activities, except tree felling in accordance with condition 5.5 (b), road and snig track construction in accordance with condition 5.5 (i), road re-opening and harvesting of tea tree oil, are prohibited within all Rare Non-Commercial Forest Types.
- b) The felling of trees across the boundary of a Rare Non-Commercial Forest Type area is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Rare Non-Commercial Forest Type area, whatever 200 metre length of boundary is considered.
- c) Condition 5.5 (b) is not breached where a tree is accidentally felled into a Rare Non-Commercial Forest Type area.
- d) A tree that is accidentally felled into a Rare Non-Commercial Forest Type area may be removed from the area, but only if the tree contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 5.5 (b).
- e) A tree that is felled into a Rare Non-Commercial Forest Type area under condition 5.5 (b), or felled accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the area using a mechanical harvester; and

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- ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- f) Harvesting machinery is prohibited within areas of a Rare Non-Commercial Forest Type area, except for:
 - i. the purpose of routine road maintenance, road and snig track construction in accordance with condition 5.5 (i), road re-opening; and
 - ii. accessing trees in the net logging area using harvesting machinery where:
 - 1. the technique of directional felling could not be used to fall a tree that is outside the Rare Non-Commercial Forest Type area (and within the net logging area) away from that area; and
 - 2. the tree contains a timber log; and
 - 3. the only practicable method of felling that tree is to enter the Rare Non-Commercial Forest Type area with harvesting machinery and fell the tree; and
 - 4. the tree is felled away from the Rare Non-Commercial Forest Type area; and
 - 5. the wheels or tracks of the machinery remain wholly within 5 metres of the boundary of the Rare Non-Commercial Forest Type area with the net logging area; and
 - 6. the use of the harvesting machinery only involves the use of walkover techniques and minimises to the greatest extent practicable skewing of machine tracks; and
 - 7. the harvesting machinery operates with any blades, rippers or similar attachments positioned so that they do not disturb the ground, vegetation or soil.
- g) Harvesting machinery that has entered Rare Non-Commercial Forest Type area for the purpose of accessing trees in the net logging area (under condition 5.5 (f)) may also be used to remove any tree that has been felled into the Forest under condition 5.5 (b) or accidentally.
- h) However, the wheels or tracks of the harvesting machinery may not (to any significant extent) be repositioned or moved solely for the purpose of removing the tree. In other words, they may be repositioned or moved only if this is also necessary for a purpose related to accessing trees in the net logging area. For the avoidance of doubt, the restrictions on the operation of the machinery set out in condition 5.5 (f) (ii) (such as the wheels or tracks remaining within 5 metres from the boundary) apply to the operation of the machinery when removing the tree.
- i) A road and snig track may be constructed, and used in any area that is, or is within, Rare Non-Commercial Forest Types, only where:
 - i. there is no practicable alternative site available for the purposes of the construction;
 - ii. prior to the construction, the SFNSW Regional Manager that is responsible for managing the land on which the construction is proposed to be carried out (or a more senior officer), has prepared a report addressing the matters in Schedule 6 of this licence and has authorised the construction in writing; and
 - iii. all practicable measures are taken to minimise any adverse impacts of the construction on the environment; and
 - iv. such areas are not in exclusion zones relating to threatened species referred to in condition 5.1 (b) unless carried out in accordance with condition 5.1 (b).
- j) A copy of the written approval of the SFNSW Regional Manager which addresses the matters raised in Schedule 6 of this licence must be faxed to NPWS, as soon as possible after the approval has been issued.

AMENDMENT 5
1 March 2013
Condition 5.5 i) ii.
omitted

APPENDIX B – LOWER NORTH EAST

- k) In the construction and the operation of snig tracks in Rare Non-Commercial Forest Types in accordance with condition 5.5 (i), hollow-bearing trees must not be used as bumper trees for moving logs.
- l) Where an exclusion zone referred to in condition 5.1 (b) as it relates to a threatened species is located either wholly or partially within an area of Rare Non-Commercial Forest Type, then SFNSW is only permitted to construct roads and snig tracks in accordance with condition 5.1 (b).
- m) Harvesting of tea tree oil must comply with condition 5.19 Tea-tree Protection of this licence.

5.6 Tree Retention

The following condition must be applied within the non-regrowth zone:

- a) The following definitions apply for the purpose of this condition:
 - i. “Hollow-bearing tree” means a live tree in the net logging area where the base, trunk or limbs contain hollows, holes and cavities that have formed as a result of decay, injury or other damage. Such hollows may not be visible from the ground; but may be apparent from the presence of deformities such as burls, protuberances or broken limbs, or where it is apparent the head of the tree has been lost or broken off.
 - ii. “Recruitment tree” means a live tree of a mature or late mature growth stage (using the modified Jacobs growth stage assessment as depicted in schedule 3) within the net logging area that is not suppressed prior to harvesting and appears to have good potential for hollow development and long term survival.
- b) Within the Non-regrowth Zone the following requirements for retention of Hollow-bearing trees apply:
 - i. A minimum of five hollow-bearing trees must be retained per hectare of net logging area. Where this density is not available, the existing hollow-bearing trees must be retained plus additional trees must be retained as hollow-bearing trees to meet the required rate.
 - ii. In selecting hollow-bearing trees for retention, priority must be given to any hollow-bearing trees which exhibit evidence of occupancy by hollow dependent fauna and trees which contain multiple hollows or hollows of various sizes.
 - iii. The remaining hollow-bearing trees and any additional trees required to be retained to meet the retention rate under this condition must be selected with the objective of retaining trees having as many of the following characteristics as possible:
 - belonging to a cohort of trees with the largest dbhob,
 - good crown development,

(Note: this does not restrict the selection of trees with broken limbs consistent with the hollow-bearing tree definition).

 - minimal butt damage,
 - represent the range of hollow-bearing species that occur in the area,
 - located such that they result in retained trees being evenly scattered throughout the net logging area.
- c) Within the Non-regrowth Zone the following requirements for retention of Recruitment trees apply:
 - i. A minimum of five recruitment trees must be retained per hectare of net logging area.
 - ii. Recruitment trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:
 - belong to a cohort of trees with the largest dbhob,
 - located such that they result in retained trees being evenly scattered throughout the net logging area,
 - good crown development,

AMENDMENT 5
1 March 2013
Condition 5.6 a)-e)
replaced

APPENDIX B – LOWER NORTH EAST

- minimal butt damage,
 - represent the range of hollow-bearing species that occur in the area.
- d) Within the Regrowth Zone the following requirements for retention of Hollow-bearing trees apply:
- i. A minimum of five hollow-bearing trees must be retained per hectare of net logging area. Where this density of hollow-bearing trees is not available all hollow-bearing trees within the net logging area must be retained.
 - ii. In selecting hollow-bearing trees for retention, priority must be given to any hollow-bearing trees which exhibit evidence of occupancy by hollow dependent fauna and trees which contain multiple hollows or hollows of various sizes.
 - iii. Hollow-bearing trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:
 - belonging to a cohort of trees with the largest dbhob,
 - good crown development,

(Note: this does not restrict the selection of trees with broken limbs consistent with the hollow-bearing tree definition).

 - minimal butt damage,
 - represent the range of hollow-bearing species that occur in the area,
 - located such that they result in retained trees being evenly scattered throughout the net logging area.
- e) Within the Regrowth Zone, for each hollow-bearing tree retained in (d) above, a recruitment tree must be retained. Recruitment trees must be selected with the objective of retaining trees having as many of the following characteristics as possible:
- i. belong to a cohort of trees with the largest dbhob,
 - ii. located such that they result in retained trees being evenly scattered throughout the net logging area
 - iii. good crown development,
 - iv. minimal butt damage,
 - v. represent the range of hollow-bearing species that occur in the area.
- f) In this condition “dead standing tree” means a dead standing tree which is greater than 300mm diameter at breast height and greater than 3 metres in height.
- i. Where five or more dead standing trees per hectare occur in the net logging area, a minimum of five dead standing trees must be retained per hectare of net logging area where it is safe to do so. If there are less than five dead standing trees per hectare, then all dead standing trees should be retained where it is safe to do so.
 - ii. In a mechanised harvesting operation (being an operation that involves felling trees using mechanised harvesting machinery rather than an operation that relies on felling trees using a chainsaw) where a dead standing tree required to be retained under this condition is removed because it was unsafe, FNSW must ensure that the following information is recorded:
 - a description of the hazard posed by the dead standing tree in the context of the operation such as proximity to roads or log dumps,
 - the location of the dead standing tree (by reference to its grid co-ordinates),
 - the date on which the dead standing tree was removed,
 - an estimate of the diameter at breast height of the dead standing tree.
- g) Significant Food Resources
- i. Damage to the following types of trees or shrubs must be avoided or minimised to the greatest extent practicable during harvesting operations:

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- all stands of *Allocasuarina* or *Casuarina* spp.,
 - individual shrubs or trees of *Allocasuarina* or *Casuarina* spp. where there is evidence that glossy black-cockatoos have been feeding on them, such as chewed cones at the base of the trees,
- ii. Specified forestry activities should be conducted in such a manner as to minimise damage to stands where *Allocasuarina* spp. dominate the canopy, sub-canopy or understorey.
- (Note: it is not the intention to stop harvesting operations in areas identified in condition 5.6 (f) ii. above.)
- iii. At least six eucalypt feed trees must be retained in every two hectares of net logging area where they occur. Where a retained eucalypt feed tree also meets the requirements of a hollow-bearing or recruitment tree, the eucalypt feed tree can be counted as a hollow-bearing or recruitment tree.
- iv. All Yellow-bellied Glider and Squirrel Glider sap feed trees must be retained. Where a retained sap feed tree also meets the requirements of a hollow-bearing or recruitment tree, the sap feed tree can be counted as a hollow-bearing or recruitment tree.
- v. Damage to flowering or fruiting banksias and *Xanthorrhoea* spp. should be avoided during forestry operations.
- h) Protection of retained trees
- i. When conducting specified forestry activities and post-logging burning, damage to trees retained under conditions 5.6 (a), 5.6 (b), 5.6 (c), 5.6 (d), 5.6 (e) and 5.6 (f) of this licence must be minimised to the greatest extent practicable. During harvesting operations, the potential for damage to these trees must be minimised by utilising techniques of directional felling.
- ii. In the course of conducting specified forestry activities, logging debris must not, to the greatest extent practicable, be allowed to accumulate within five metres of a retained hollow-bearing tree, recruitment tree, stag, *Allocasuarina* with more than 30 crushed cones beneath, eucalypt feed tree, or Yellow-bellied Glider or Squirrel Glider sap feed tree. Logging debris within a five metres radius of retained trees must be removed or flattened to a height of less than one metre. Disturbance to ground and understorey must be minimised to the greatest extent practicable within this five metres radius. Habitat and recruitment trees must not be used as bumper trees during harvesting operations.
- iii. Retained trees referred to in conditions 5.6 (a) i., 5.6 (b) i., 5.6 (c) i., 5.6 (d) i., 5.6 (e) i., 5.6 (f) i., 5.6 (f) iii. and 5.6 (f) iv. of this licence must be marked for retention. The only exception to the marking of the retained trees can occur where the understorey consists of thick impenetrable lantana greater than one metre high or other impenetrable understorey. SFNSW must clearly document and justify such situations in harvest planning documentation either during pre-planning or as it becomes apparent during compartment mark-up.

AMENDMENT 2
23 April 2003
Condition 5.7 (incl
heading) replaced
Ref Appendix E

5.7 Riparian Habitat Protection

- a) Protection zones (hard) must be retained along the entire length of all streams and must have the minimum widths either side of the stream in accordance with Table 1. The width of the protection zone (hard) must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel. Where there is no incised channel, the protection zone (hard) must be measured from the centreline of the drainage feature.
- b) Protection zones (soft) must be retained along the entire length of all protection zones (hard) and must have a minimum width either side of the protection zone (hard) in accordance with Table 1. The width of a protection zone (soft) must be measured from the edge of the protection zone (hard) furthest from the stream.
- c) The determination of stream order for the purposes of Table 1 must be carried out in accordance with Schedule 1 of this licence.

Table 1: Minimum protection zone (hard) and protection zone (soft) widths for streams (metres - measured along the ground surface).

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Stream Order	Protection zone (hard)	Protection zone (soft)
1st Order	5	5
2nd Order	5	15
3rd Order	5	25
4th Order or greater	5	45

Operations within protection zones (hard)

- d) Specified forestry activities, except road and snig track construction in accordance with conditions 5.7 (r to u) and road re-opening, are prohibited within the protection zone (hard).
- e) Trees must not be felled into the protection zone (hard).
- f) Condition 5.7 (e) is not breached where a tree is accidentally felled into the protection zone (hard).
- f1) A tree that is accidentally felled into a protection zone (hard) may be removed from that zone if it contains a timber log. For the avoidance of doubt, the whole tree may be removed even though the timber product that any part of the tree will produce is not a timber log.
- f2) The following rules apply to the removal of the accidentally felled tree:
 - i. the crown must be cut off from the trunk and left where it has fallen unless the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester;
 - ii. the wheels or tracks of any harvesting machinery used to remove the accidentally felled tree (or any logs into which it is cut) must remain outside the protection zone (hard). Where harvesting machinery has entered the adjoining protection zone (soft) to fell a tree within the net logging area it may also be used to remove the accidentally felled tree, but only if its wheels or tracks remain wholly within 5 metres of the boundary between the protection zone (soft) and the net logging area;
 - iii. the wheels or tracks of harvesting machinery that is within a protection zone (soft) may not be moved or repositioned solely for the purpose of removing the accidentally felled tree. (In other words, they may be moved or repositioned only if this is necessary for a purpose related to accessing trees in the net logging area.) The restrictions on the operation of the harvesting machinery set out in condition 5.7 (p) (such as the requirement to use walkover techniques) apply to the operation of the machinery to remove the accidentally felled tree or logs into which it has been cut.
- g) SFNSW must document the date on which the tree was accidentally felled into the protection zone (hard) and its location.
- h) Harvesting machinery including mechanical harvesters must not enter the protection zone (hard), except for the construction and use of a road crossing or snig track crossing in accordance with conditions 5.7 (r to u) below.
- i) Trees located within the protection zone (hard) must not be felled, except for the purpose of removing vegetation that is in the area of a proposed road crossing or snig track in accordance with section 5.7 (r to u) below.

Operations within protection zones (soft)

- j) Specified forestry activities, except road and snig track construction in accordance with conditions 5.7 (r to u) and road re-opening, are prohibited within the protection zone (soft).
- k) Trees may be felled into a protection zone (soft).
- l) Where a tree is felled into a protection zone (soft), then the crown must not be removed from the protection zone (soft) except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester.
- m) Harvesting machinery that has entered the protection zone (soft) for the purpose of felling a tree within the net logging area may also be used to remove a tree that has been felled into the protection zone (soft).
- n) However, the wheels or the tracks of the harvesting machinery may not (to any significant extent) be

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repositioned or moved solely for the purpose of removing the tree felled into the protection zone (soft). (In other words, they may be moved or repositioned only if this is also necessary for a purpose related to accessing trees in the net logging area under condition 5.7 (p).) The restrictions on the operation of the machinery set out in condition 5.7 (p) also apply to the operation of the machinery to remove the tree felled into the protection zone (soft).

- o) Trees located in a protection zone (soft) must not be felled, except for the purpose of removing vegetation that is in the area of a proposed road crossing or snig track in accordance with section 5.7 (r to u) below.
- p) Harvesting machinery is permitted to operate in a protection zone (soft) for the purposes of felling a tree within the net logging area that contains a timber log where:
 - i. the technique of directional felling could not be used to fell the tree so that it falls outside the protection zone (soft) and within the net logging area;
 - ii. the only practicable method of felling that tree so that it falls outside the protection zone (soft) is to enter the protection zone (soft) with harvesting machinery and fell the tree;
 - iii. the tree is felled away from the protection zone (soft);
 - iv. the wheels or tracks of harvesting machinery remain wholly within 5 metres of the boundary of the protection zone (soft) with the net logging area;
 - v. the use of the harvesting machinery only involves the use of walkover techniques and minimises to the greatest extent practicable skewing of machine tracks; and
 - vi. the harvesting machinery operates with any blades, rippers or similar attachments positioned so that they do not disturb the ground, vegetation and soil.
- q) Harvesting machinery must not operate in a protection zone (soft) when the soil is saturated.

Road and snig track construction

- r) A road and snig track may be constructed, and used in any area that is, or is within, either a protection zone (hard) or protection zone (soft), but only where:
 - i. there is no practicable alternative site available for the purposes of the construction; and
 - ii. prior to the construction, the SFNSW Regional Manager that is responsible for managing the land on which the construction is proposed to be carried out (or a more senior officer), has prepared a report addressing the matters in Schedule 6 of this licence and has authorised the construction in writing; and
 - iii. all practicable measures are taken to minimise any adverse impacts of the construction on the environment; and
 - iv. such areas are not in exclusion zones relating to threatened species referred to in condition 5.1 (b) unless carried out in accordance with condition 5.1 (b).
- s) A copy of the written approval of the SFNSW Regional Manager which addresses the matters raised in Schedule 6 of this licence must be faxed to NPWS, as soon as possible after the approval has been issued.
- t) In the construction and the operation of roads and snig tracks in protection zones (hard) and protection zones (soft) in accordance with condition 5.7 (r), hollow-bearing trees must not be removed or used as bumper trees for moving logs.
- u) Where an exclusion zone referred to in condition 5.1 (b) as it relates to a threatened species is located either wholly or partially within a protection zone, then SFNSW is only permitted to construct roads and snig tracks in accordance with condition 5.1 (b).

5.8 Location of Ridge and Headwater Habitat

- a) For every 500 hectares of areas within the Lower North East Region as identified in Clause 4 of this approval, FCNSW must implement:
 - i. a minimum of two exclusion zones at least 40 metres wide which connect second order streams; or

AMENDMENT 5
1 March 2013
Condition 5.7 r) ii.
omitted

AMENDMENT 2
23 April 2003
Condition 5.8
replaced
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 5.8
replaced

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- ii. a minimum of one exclusion zone at least 80 metres wide which connects third order streams.
- b) Stream order is to be determined in accordance with Schedule 1 of this licence for the purpose of this condition.
- c) Exclusion zones implemented under condition 5.8 (a) must, wherever possible, establish links between third order streams of different third order catchments.
- d) Where the Ridge and Headwater Habitat exclusion zones do not link different third order streams, a minimum length of 250 metres must be established for each exclusion zone in condition 5.8 (a) i. (eg. total length 500 metres), or a 500 metres minimum length established for the exclusion zone in condition 5.8 (a) ii.
- e) Exclusion zones implemented under condition 5.8 (a) above should connect the relevant second or third order stream via the associated lower order stream(s). Areas of identified High Conservation Value Old Growth Forest, Rare Non-commercial Forest Types and Rainforest may be used as the basis of exclusion zones.
- f) Ridge and Headwater Habitat exclusion zones must not, to the greatest extent practicable, cross existing roads.
- g) Amendment to the location of Ridge and Headwater Habitat exclusion zones may not be made unless approved by EPA. When applying for an amendment, FCNSW must provide reasons for the proposed amendment and options considered and must address the following matters:
 - i. the continuity with exclusion zones applied in any preceding logging operations;
 - ii. the habitat values and forest types of areas linked by the proposed exclusion zones compared to those previously in place;
 - iii. the tenure of the land linked by the proposed exclusion zones compared to those previously in place; and
 - iv. the landuse of areas linked by the proposed exclusion zones compared to those previously in place.
- h) The felling of trees across the boundary of a Ridge and Headwater Habitat exclusion zone is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Ridge and Headwater Habitat exclusion zone, whatever 200 metre length of boundary is considered.
- i) Condition 5.8 (h) is not breached where a tree is accidentally felled into a Ridge and Headwater Habitat exclusion zone.
- j) A tree that is accidentally felled into a Ridge and Headwater Habitat exclusion zone may be removed from the zone, but only if the tree contains a timber log. The tree may be removed from the zone even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 5.8 (h).
- k) A tree that is felled into a Ridge and Headwater Habitat exclusion zone under condition 5.8 (h), or felled accidentally as described in condition 5.8 (j), may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- l) Except as provided by conditions 5.1 and 5.8 (h)-(k), specified forestry activities other than road construction and road re-opening where there is no other practical means of access, are prohibited in these exclusion zones.

5.9 Wetlands

- a) Specified forestry activities, except harvesting of tea tree oil, are prohibited in all wetlands, irrespective of the size of the wetland and their surrounding exclusion zones.
- a1) Condition 5.9 (a) is not breached where a tree is accidentally felled into a wetland or exclusion zone established around a wetland under conditions 5.9 (c), (d) or (e).
- a2) Despite condition 5.9 (a), where a tree is accidentally felled into a wetland or exclusion zone established around a wetland under conditions 5.9 (c), (d) or (e), in the course of a harvesting operation, it may be removed, but only if the tree contains a timber log. For the avoidance of doubt, the whole of the tree (subject to condition 5.9 (a3)) may be removed even though the timber product that any part of the tree will produce is not a timber log.
- a3) The following rules apply to the removal of the tree:
- i the crown must be cut off from the trunk and left where it has fallen unless the whole of the tree is lifted out of, or lifted and moved within, the wetland or exclusion zone using a mechanical harvester;
 - ii in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- b) Harvesting of tea tree oil is prohibited in all areas of SEPP 14 wetlands and their surrounding exclusion zones. Harvesting of tea tree oil in other wetlands and their surrounding exclusion zones must comply with condition 5.19 of this licence.
- c) Exclusion zones of at least ten metres wide must be implemented around all wetlands less than 0.5 hectare (approx. 70 metres x 70 metres) surface area.
- d) Exclusion zones of at least 20 metres wide must be implemented around all wetlands between 0.5 hectare (approx. 70 metres x 70 metres) and 2.0 hectares (approx. 150 metres x 150 metres) surface area.
- e) Exclusion zones of at least 40 metres wide must be implemented around all SEPP 14 wetlands irrespective of size, and other wetlands greater than 2.0 hectares surface area.
- f) The area of wetlands and their surrounding exclusion zones must be measured from the edge of the current saturated zone or from the outer edge of where the vegetation type indicates a wetter micro-environment than the surrounding country, whichever is larger.
- g) Wetlands less than 0.5 hectare surface area must be marked in the field for protection and recorded as accurately as possible on harvest plan operational maps.
- h) Grazing and associated burning should be excluded from wetlands.

AMENDMENT 2
23 April 2003
Condition 5.9(a1)-
a3) added
Ref Appendix E

5.10 Heath and Scrub

- a) Specified forestry activities are prohibited from all areas of heath and scrub greater than 0.2 hectares (approx. 45 metres x 45 metres) surface area.
- b) Exclusion zones of at least 20 metres wide must be implemented around all heath and scrub of more than 0.2 hectares surface area.
- c) The area of heath and scrub, and exclusion zones around heath and scrub, must be measured from the outer edge of areas of heath and scrub.

5.11 Rocky Outcrops and Cliffs

- a) Specified forestry activities are prohibited within areas of rocky outcrops and cliffs.
- b) In addition, exclusion zones of at least 20 metres wide must be implemented around all rocky outcrops more than 0.1 hectare (approx. 30 metres x 30 metres), and all cliffs.

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23 April 2003
Condition 5.11(c)-f)
added
Ref Appendix E

- c) The felling of trees across the boundary of exclusion zones around rocky outcrops and cliffs is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the exclusion zones, whatever 200 metre length of boundary is considered.
- d) Condition 5.11 (c) is not breached where a tree is accidentally felled into a Rocky Outcrops and Cliff exclusion zone.
- e) A tree that is accidentally felled into a Rocky Outcrops and Cliff exclusion zone may be removed from the zone, but only if the tree contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 5.11 (c).
- f) A tree that is felled into a Rocky Outcrops and Cliff exclusion zone under condition 5.11 (c), or accidentally, may be removed only in accordance with the following rules:
- i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

(Note: It is not intended to exclude SFNSW from all areas that have a scattered or stony or rocky ground cover. Only those areas where rocks and exposed boulders cover greater than 70% of at least a 0.1 hectare area. Those areas that fall within the definition of Rocky Outcrops and Cliffs are considered to contain likely habitat for threatened flora and fauna.)

5.12 Threatened Frog General Protection Measures

- a) A buffer zone of at least ten metres wide must be implemented around all dams. Trees must not be felled within the buffer zone. Trees should not be felled into the buffer zone. Harvesting machinery must not enter the buffer zone.
- b) Where a group of more than ten male threatened species of frogs per hectare are detected, any new stream crossings within 500 metres of that group must, to the greatest extent practicable, be constructed using methods which do not significantly alter stream flow (eg. bridge or box culvert).

AMENDMENT 2
23 April 2003
Condition 5.13
replaced
Ref Appendix E

5.13 Bird Nest and Roost Site Protection

- a) The following exclusion zones must be applied around nest and roost sites:
- i. Powerful Owl nest 50 metres radius
 - ii. Powerful Owl roost 30 metres radius
 - iii. Masked Owl nest 50 metres radius
 - iv. Masked Owl roost 30 metres radius
 - v. Sooty Owl nest 50 metres radius
 - vi. Sooty Owl roost 30 metres radius
 - vii. Barking Owl nest 50 metres radius
 - viii. Barking Owl roost 30 metres radius
 - ix. Bush Stone-Curlew nest 100 metres radius
 - x. Albert's Lyrebird nest 100 metres radius
 - xi. Turquoise Parrot nest 30 metres radius
 - xii. Osprey nest 100 metres radius
 - xiii. Square-tailed Kite nest 100 metres radius
 - xiv. Regent Honeyeater nest 20 metres radius

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AMENDMENT 5
1 March 2013
Condition 5.13 a)
xv.-xxiv. added

- | | | |
|--------|--|-------------------|
| xv. | Varied Sittella nest | 20 metres radius |
| xvi. | Little Lorikeet nest | 30 metres radius |
| xvii. | Little Eagle nest | 100 metres radius |
| xviii. | Flame Robin nest | 50 metres radius |
| xix. | Scarlet Robin nest | 50 metres radius |
| xx. | Gang-gang Cockatoo nest | 20 metres radius |
| xxi. | Speckled Warbler nest | 5 metres radius |
| xxii. | Black-chinned Honeyeater
(eastern sub-species) nest | 20 metres radius |
| xxiii. | Hooded Robin nest | 50 metres radius |
| xxiv. | Brown Treecreeper nest | 20 metres radius |
- b) Where nests and roosts of Powerful Owl, Masked Owl, Sooty Owl and Barking Owl are recorded after the development of a landscape approach for an area, and they occur outside areas retained as part of that landscape approach, the appropriate exclusion zone in condition 5.13 (a) above must be implemented around the roost or nest.
- c) An exclusion zone at least 50 metres radius must be implemented around all Glossy Black-Cockatoo nests. The felling of trees across the boundary of Glossy Black Cockatoo nest exclusion zones is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Glossy Black-Cockatoo nest exclusion zones, whatever 200 metre length of boundary is considered.
- d) Condition 5.13 (c) is not breached where a tree is accidentally felled into a Glossy Black-Cockatoo nest exclusion zone.
- e) A tree that is accidentally felled into a Glossy Black-Cockatoo nest exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 5.13 (c).
- f) A tree that is felled into a Glossy Black-Cockatoo nest exclusion zone under condition 5.13 (c), or accidentally, may be removed only in accordance with the following rules:
- i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- g) Nest exclusion zones for the following species must be implemented for the duration of this licence: Powerful Owl, Masked Owl, Sooty Owl, Barking Owl and Osprey.
- h) Nest exclusion zones for the following species may be removed where surveys conducted during two consecutive breeding seasons establish to the satisfaction of the EPA that the nest or nest site is not being used: Square-tailed Kite, Albert's Lyrebird, Regent Honeyeater, Glossy Black-Cockatoo, Bush Stone-Curlew, Turquoise Parrot, Varied Sittella, Little Lorikeet, Flame Robin, Scarlet Robin, Little Eagle, Gang-gang Cockatoo, Speckled Warbler, Black-chinned Honey-eater (eastern sub-species), Hooded Robin and Brown Treecreeper.
- i) Trees which contain raptor nests, other than those referred to in condition 5.13 (a) above, or Grey-crowned Babbler or Diamond Firetail nests must be retained and marked for retention. During harvesting operations, the potential for damage to these trees must be minimised by utilising techniques of directional felling.
- j) When ten Glossy Black-Cockatoo nests or ten Gang-gang Cockatoo nests are recorded on FNSW estate over a two year period separated by at least two kilometres within a 15 kilometres radius, FNSW may apply to the EPA for a review of this condition.

AMENDMENT 5
1 March 2013
Condition 5.13 h)
replaced

AMENDMENT 5
1 March 2013
Condition 5.13 i)
modified

AMENDMENT 5
1 March 2013
Condition 5.13 j)
replaced

5.14 Bat Roost Protection

5.14.1 Tree Roost Protection

- a) Likely microchiropteran bat roost trees must be inspected prior to harvesting operations approaching within 100 metres of such trees. Likely roost trees are stags greater than 30 centimetres dbhob, large trees with accessible base hollows, or hollow-bearing trees.
- b) If a bat roost tree is located an exclusion zone of at least 30 metres radius must be implemented around the tree roost.

AMENDMENT 5
1 March 2013
Condition 5.14.2-4
replaced

5.14.2 Subterranean Roost Protection

Exclusion zones for bats

- a) The following are **exclusion** zones for bats:
 - i. a potential subterranean bat roost,
 - ii. if the potential subterranean bat roost is a disused mine shaft, any area within 40 metres of each entrance to the shaft,
 - iii. in the case of a potential subterranean bat roost other than a disused mine shaft, any area within 100 metres of each entrance of the roost.
- b) A potential subterranean bat roost that consists of a disused mine shaft or rock overhang, and the area surrounding it, cease to be bat **exclusion** zones if:
 - i. an absence of evidence of bats within the roost is established in at least one inspection survey, and
 - ii. there is no record associated with the roost of a bat of a species that uses roosts of that kind.
- c) The bat **exclusion** zone around each entrance of a potential subterranean bat roost that consists of a cave, mine or tunnel is reduced from any area within 100 metres of the entrance to any area within 50 metres of the entrance if:
 - i. an absence of evidence of bats within the roost is established in:
 - at least one inspection survey, if the roost is a mine, and
 - at least two inspection surveys, if the roost is a cave or tunnel, and
 - ii. there is no record associated with the roost of a bat of a species that uses roosts of that kind.
- d) If there is a record of bats in a subterranean site (being a cave, disused mine shaft, mine, tunnel or rock overhang) that is not a potential subterranean bat roost, that site, and any area within 100 metres of each entrance to the site, are bat **exclusion** zones.

Inspection survey

- e) It is not enough that no evidence of bats is found within a roost during an inspection survey for an absence of evidence of bats within the roost to have been established for the purposes of condition 5.14.2 (b) i. or (c) ii. If, for example, the person carrying out the survey was unable to inspect the entire roost, an absence of evidence of bats within the roost is not established for the purposes of condition 5.14.2 (b) i. or (c) ii. (as the case may be).
- f) For the purpose of this condition:
 - i. an inspection survey is a survey that is carried out by a person with experience in surveying subterranean bat roosts for evidence of bats, and
 - ii. an inspection survey ceases to be an inspection survey 10 years after being carried out (but may have been carried out before the commencement of this approval), and
 - iii. the two inspection surveys referred to in condition 5.14.2 (c) i. (if the roost is a cave or tunnel) are two inspection surveys carried out in different survey seasons, being:
 - October – March,
 - April – September.

Definitions

g) In this condition:

“disused mine shaft” means a vertical tunnel constructed for the purpose of mining, but no longer used for that purpose;

“evidence of bats” includes, not only a sighting of a bat or bats, but also guano (either whole or powdered) and the distinctive odour of guano;

“mine or tunnel” means an underground cavity that has been created or constructed by people and that is enclosed except for one or more entrances (or exits);

“potential subterranean bat roost” means any of the following:

- i. a cave that meets the following description:
 - at least one entrance has a diameter of 0.5 metres or more, and
 - the diameter of the cave chamber (that is, the longest distance between any two points on the perimeter of the cave’s base) is at least 0.5 metres, and
 - the length of the cave (from entrance to furthest point from the entrance) is at least 3 metres, and
 - the height of a dome of the cave is at least 1 metre higher than the top of an entrance;
- ii. a disused mine shaft that is at least 4 metres deep and that has one or more of the following features:
 - not all faces of the shaft are visible from the surface,
 - it has ledges that are suitable for bats to roost under,
 - it links to a horizontal shaft that is at least 1 metre long;
- iii. a mine or tunnel that meets the following description:
 - at least one entrance has a diameter of 0.5 metres or more, and
 - the length of the mine or tunnel running horizontally is at least 3 metres, and
 - the cavity is at least 1 metre high at some point;
- iv. a rock overhang with holes or crevices (or both) in the roof or wall protected by the overhang where the overhang protrudes at least 3 metres from the wall of the rock face below it and is at least 3 metres wide; and
- v. “rock overhang” is a rock that projects outward from the rock face below it, protruding at least 3 metres from the wall of the rock face and is at least three metres wide.

5.14.3 Protection of Flying-fox camps

- a) If there is a record of a flying-fox camp in a compartment, or a flying-fox camp is detected during pre-harvest inspections or during harvesting operations, specified forestry activities must be excluded from the full extent of the camp. An exclusion zone of at least 50 metres wide must be implemented around the camp. FNSW must also consider implementing an exclusion zone of up to 200 metres wide to allow for expansion or movement of the camp.
- b) The geographical boundaries of the camp must be recorded by FNSW using a Geographic Positioning System. Where the camp is unoccupied at the time of the forestry activity, the boundaries of the camp must be taken from the EPA Flying-fox Camp Database. FNSW must check the EPA Flying-fox Camp Database when preparing harvest plans.

5.15 Grazing

- a) The areal extent of grazing authorities issued by SFNSW must not be extended except where they fulfil SFNSW responsibilities under the *Rural Fires Act 1997*.
- b) Grazing Management Plans for all SFNSW estate subject to domestic grazing must be prepared by the first five yearly review of the Integrated Forestry Operations Approval. Grazing Management Plans must consider the habitat requirements of threatened species and include management actions to protect threatened species and their habitats. SFNSW should consult with NPWS during the preparation of these Plans.

5.16 Burning

When fulfilling its responsibilities under the *Rural Fires Act 1997*, SFNSW must take account of the following principles:

- a) Hazard reduction work must take account of wildfire history, intensity, frequency and seasonality, and reflect the ecological requirements of any threatened species, or their habitat, known or likely to occur in the area.
- b) Hazard reduction work must be conducted in a manner which promotes and maintains an understorey mosaic which includes significant areas of dense understorey vegetation.
- c) Hazard reduction work must be conducted in a manner which minimises the impact on large fallen logs (greater than 40 centimetres diameter and greater than five metres in length).

(Note: It is acknowledged that hazard reduction work will be covered by a Bush Fire Risk Management Plan and that this plan is required to take into account the impact of burning activities on threatened species including areas where fire intervals are less than five years.)

5.17 Ground Habitat Protection

- a) SFNSW must, to the greatest extent practicable, protect ground habitat from specified forestry activities. Ground habitat includes, but is not limited to, understorey vegetation, ground cover vegetation, thick leaf litter and fallen timber.
- b) Commercial firewood collection must not be permitted in compartments with records of the following species: *Lampropholis caligula*, Bush Stone-Curlew, Sand Goanna, White-crowned Snake, Pale-headed Snake, Rufous Bettong, Brush-tailed Phascogale, Spotted-tailed Quoll, *Drysdalia coronoides*, Varied Sittella, Flame Robin, Scarlet Robin, Speckled Warbler, Grey-crowned Babbler, Diamond Firetail, Hooded Robin or Brown Treecreeper.
- c) Domestic firewood collection permits issued by SFNSW must include the following conditions:
 - i. Firewood may only be collected from within 20 metres of either side of a permanent road or within a 20 metres radius of a log dump. A permanent road is defined as a road shown on a harvesting plan operational map that remains open to public vehicular traffic after the completion of a harvesting operation.
 - ii. Firewood must not be collected from High Conservation Value Old Growth Forest, Rainforest, Rare Non-Commercial Forest Types and protection zones.
 - iii. Only timber that has fallen or has already been felled may be collected. Timber greater than 40 centimetres diameter must not be collected or damaged. Logs with hollows, irrespective of the diameter of the log, must not be collected or damaged. Standing dead trees or stags must not be felled.
- d) In compartments with records of CWR species (other than those listed in condition 5.17 (b) above), commercial and domestic firewood licenses should specify that fallen hollow logs greater than 40 centimetres diameter must not be collected or damaged during the course of the collection of firewood.

AMENDMENT 5
1 March 2013
Condition 5.17 b)
modified

AMENDMENT 2
23 April 2003
Condition 5.17c)ii
replaced
Ref Appendix E

5.18 Feral and Introduced Predator Control

- a) SFNSW, in consultation with NPWS, must finalise the Draft Feral and Introduced Predator Control Plan (see Schedule 7 of this licence) by 31 December 1999.
- b) SFNSW must implement the final Feral and Introduced Predator Control Plan within the first five years of the Integrated Forestry Operations Approval.

5.19 Tea-tree *Melaleuca* spp. Protection

- a) Harvesting of tea tree oil is prohibited within exclusion zones, except Rare Non-Commercial Forest Type 31 Paperbark and non-SEPP 14 wetlands and their surrounding exclusion zones.
- b) Harvesting of tea tree oil is prohibited from a minimum 20% of tea tree individuals of the compartment. This 20% must be retained in clusters greater than 20 metres diameter. Clusters should be spread throughout the compartment.
- c) SFNSW, in consultation with NPWS, must prepare a Plan of Management for Harvesting of tea tree oil within two years of the commencement date.
- d) Harvesting of previously uncut tea-tree *Melaleuca* is prohibited.
- e) The road construction solely for the purpose of tea-tree harvesting is prohibited.
- f) Access to tea-tree harvesting areas should be avoided during very wet weather.
- g) The threatened species *Melaleuca tamarascina* spp. *irbyana* must not be harvested.

5.20 Miscellaneous Forestry Operations

- a) Cutting of posts for neighbour boundary fencing and the felling of timber for the construction of causeways and bridges for the purposes of forest management must only involve the felling of up to 50 trees of a maximum 80 centimetres dbhob, at a maximum density of five trees per hectare up to a maximum area of 50 hectares of the compartment.
- b) When conducting and / or supervising miscellaneous forestry operations, SFNSW must implement conditions 5.1 Operational Requirements, 5.3 High Conservation Value Old Growth Forest, 5.4 Rainforest, 5.7 Riparian Habitat Protection, 5.8 Ridge and Headwater Habitat, 5.9 Wetlands, 5.10 Heath and Scrub, 5.11 Rocky Outcrops and Cliffs, 5.12 Threatened Frog General Protection Measures, 5.13 Bird Nest and Roost Site Protection and 5.14 Bat Roost Protection of this licence in areas where these operations are conducted.
- c) Miscellaneous forestry operations are prohibited in exclusions zones established under the requirements of conditions 5.4 Rainforest, 5.8 Ridge and Headwater Habitat, 5.9 Wetlands, 5.10 Heath and Scrub, 5.11 Rocky Outcrops and Cliffs, 5.13 Bird Nest and Roost Site Protection, 5.14 Bat Roost Protection, 6.9 Powerful Owl, Masked Owl, Barking Owl, 6.12 Brush-tailed Phascogale, 6.13 Hastings River Mouse and 6.16 Squirrel Glider, and in protection zones established under condition 5.7 Riparian Habitat Protection of this licence.
- d) Miscellaneous forestry operations are prohibited in areas of High Conservation Value Old Growth Forest referred to condition 5.3, Rainforest referred to in condition 5.4, Rare Non-commercial Forest Types referred to in condition 5.5, Wetlands referred to condition 5.9, Heath and Scrub referred to in condition 5.10, Rocky outcrops and cliffs referred to in condition 5.11 and Flying-fox camps referred to condition 5.14.4.
- e) SFNSW is exempted from the other conditions in this licence when conducting miscellaneous forestry operations other than those conditions mentioned above and those necessary to comply with the above.

AMENDMENT 2
23 April 2003
Condition 5.20b)-
c) replaced
Ref Appendix E

5.21 Exclusion Zone Research Program

Condition revoked (Amendment 2).

Condition 6. Species-specific conditions

6.1 Pouched Frog *Assa darlingtoni*

This condition applies only to the SFNSW Dorrigo Management Area. Where there is a record of *Assa darlingtoni* with the compartment or within 50 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 50 metres radius must be implemented around the record.
- b) When ten of these sites are recorded on SFNSW estate over a two year period separated by at least two kilometres within a 15 kilometres radius, SFNSW may apply to NPWS for a review of this condition.

(Note: The NPWS will advise SFNSW of the recommendation, made by NPWS in relation to condition 6.1 (b) above, to the relevant Ministers, prior to consideration by the relevant Ministers.)

6.2 Green and Golden Bell Frog *Litoria aurea*

- a) Where there is a record of *Litoria aurea* in a compartment or within 50 metres outside the boundary of the compartment, an exclusion zone of at least 50 metres radius must be implemented around the record.
- b) In addition, where the record is associated with a wetland or dam, a 50 metres wide exclusion zone must be implemented around the wetland or dam.
- c) The exclusion zone around wetlands must be measured from the edge of the current saturated zone or from the outer edge of where the vegetation type indicates a wetter micro-environment than the surrounding country, whichever is larger.
- d) The exclusion zone around dams must be measured from the highest point of the dam wall or barrier.

6.3 Giant Barred Frog *Mixophyes iteratus*, Fleay's Frog *Mixophyes fleayi*, Stuttering Frog *Mixophyes balbus*

Where there is a record of *Mixophyes balbus*, *M. iteratus* or *M. fleayi* in a compartment or within 200 metres outside the boundary of the compartment, the following must apply:

- a) Exclusion zones of at least 30 metres wide must be implemented on both sides of all streams within 200 metres of the record.
- b) The width of exclusion zones must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.
- c) When ten of these sites for a particular species are recorded on SFNSW estate over a two year period separated by at least two kilometres within a 15 kilometres radius, SFNSW may apply to NPWS for a review of this condition.

(Note: The NPWS will advise SFNSW of the recommendation, made by NPWS in relation to condition 6.3 (d) above, to the relevant Ministers, prior to consideration by the relevant Ministers.)

6.3 A Giant Burrowing Frog *Heleioporus australiacus*

Where there is a record of *Heleioporus australiacus* in a compartment or within 100 metres outside the boundary of a compartment the following applies:

- a) A monitoring program must be developed by FCNSW to assess the persistence of populations which satisfies the following:
 - i. The monitoring programme must be approved by EPA before Harvesting Operations can commence in a compartment.

AMENDMENT 5
1 March 2013
Condition 6.3 A
added

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- ii. The monitoring programme may use methods based on tadpole surveys to satisfy this condition.
 - iii. The monitoring programme must include sampling of areas not affected by Harvesting Operations (in equal number of samples and similar sized areas to sampling in compartments where Harvesting Operations occur) within nearby areas of similar habitat.
 - iv. Progress of the monitoring programme must be reported annually to EPA.
 - v. The monitoring programme must be reviewed by FCNSW and EPA after 5 years to consider whether the programme should continue.
- b) The monitoring programme must be undertaken before and after Harvesting Operations occur in a compartment or within 100 metres outside the boundary of a compartment.

6.4 *Phyloria spp.*

Where there is a record of *Phyloria spp.* within a compartment, or within 50 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 50 metres radius must be implemented around the record.
- b) When ten of these sites for a particular species are recorded on SFNSW estate over a two year period separated by at least two kilometres within a 15 kilometres radius, SFNSW may apply to NPWS for a review of this condition.

(Note: The NPWS will advise SFNSW of the recommendation, made by NPWS in relation to condition 6.4 (b) above, to the relevant Ministers, prior to consideration by the relevant Ministers.)

AMENDMENT 5
1 March 2013
Conditions 6.4 A
and 6.4 B added

6.4 A *Green-thighed Frog Litoria brevipalmata*

Where there is a record of the Green-thighed Frog *Litoria brevipalmata* within the compartment or within 30 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 30 metres radius must be implemented around the record; or
- b) Where the record location does not appear to be a suitable breeding site (an ephemeral or semi-permanently inundated depression) and a suitable breeding site is located within 100 m of the record, a 30 m radius exclusion zone is to be implemented around the most suitable breeding site located within 100 m of the record.

6.4 B *Littlejohn's Tree Frog Litoria littlejohni*

Where there is a record of the Littlejohn's Tree Frog *Litoria littlejohni* within the compartment or within 50 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 50 metres radius must be implemented around the record; or
- b) where the record is associated with a wetland or dam, a 50 metres wide exclusion zone must be implemented around the wetland or dam.
- c) The exclusion zone around wetlands must be measured from the edge of the current saturated zone or from the outer edge the vegetation type that indicates a wetter micro-environment than the surrounding country, whichever is larger.
- d) The exclusion zone around dams must be measured from the highest point of the dam wall or barrier.

6.5 *Condition omitted (Amendment 5)*

AMENDMENT 5
1 March 2013
Condition 6.5
omitted and
condition 6.6
replaced

6.6 Stephens' Banded Snake *Holocephalus stephensii*

Where there is a record of the Stephens' Banded Snake *Holocephalus stephensii* in a compartment or within 100 metres outside the boundary of the compartment, the following must apply:

- a) All hollow-bearing trees with a dbhob greater than 60 cm within 100 metres of the record/s must be retained;
- b) During harvesting operations, the potential for damage to these trees must be minimised by utilising directional felling techniques.

6.7 Albert's Lyrebird *Menura alberti*

Where there is an Albert's Lyrebird record within a compartment, or within 300 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 20 metres wide must be implemented on both sides of all first order streams within 300 metres of the record.
- b) An exclusion zone of at least 30 metres wide must be implemented on both sides of all second order streams within 300 metres of the record.
- c) The width of exclusion zones referred to in condition 6.7 (a) and (b) above, must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.
- d) Specified forestry activities are prohibited in exclusion zones implemented under conditions 6.7 (a) and (b).
- e) Condition 6.7 (d) above does not apply to road construction and road re-opening where:
 - i. There is no other practical means of access; and
 - ii. Written approval of the NPWS is obtained in accordance with condition 5.1 (b).
- f) A feral predator monitoring and control program targeting the control of fox and wild dog populations should be developed and implemented for the compartment and the surrounding area, consistent with the Regional Predator Management Program.

6.8 Marbled Frogmouth *Podargus ocellatus*

Where there is a record of Marbled Frogmouth within a compartment or within 30 metres outside the boundary of the compartment, the following must apply:

- a) An exclusion zone of at least 20 metres wide must be implemented on both sides of all first order streams in the compartment.
- b) An exclusion zone of at least 30 metres wide must be implemented on both sides of all second order streams in the compartment.
- c) The width of exclusion zones referred to in condition 6.8 (a) and (b) above, must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.
- d) Specified forestry activities are prohibited in exclusion zones implemented under conditions 6.8 (a) and (b).
- e) Condition 6.8 (d) above does not apply to road construction and road re-opening where:
 - iii. There is no other practical means of access; and
 - iv. Written approval of the NPWS is obtained in accordance with condition 5.1 (b).

6.9 Powerful Owl *Ninox strenua*, Masked Owl *Tyto novaehollandiae*, Barking Owl *Ninox connivens*

SFNSW has two options for protecting large forest owls in SFNSW estate. SFNSW must apply either the “Site Based Approach” or the “Landscape Approach”.

- a) SFNSW must notify NPWS in writing within six months after the date of this licence which approach will be applied in each state forest.
- b) In general, SFNSW can choose to change from the Site Based Approach to the Landscape Approach after that date; however, SFNSW cannot change from the Landscape Approach to the Site Based Approach. SFNSW must notify NPWS of a change from the Site-based Approach to the Landscape Approach within ten working days of the change of approaches.
- c) Where a change from the Site Based Approach to the Landscape Approach has occurred, SFNSW should retain habitat previously retained in the Site Based Approach, where it is suitable habitat as defined in the Landscape Approach.
- d) Where information indicates that Greater Gliders occur at densities of more than one per hectare within any individual compartment (that is, a compartment identified by a compartment number and not a group of compartments) being planned for harvesting, and the compartment is within two kilometres of a Powerful Owl record, eight hollow-bearing trees per hectare must be retained within the net logging area of that compartment.
- e) The felling of trees across the boundary of an exclusion zone established under conditions 6.9.1 (b and h) and 6.9.2 (c) below is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the owl exclusion zones, whatever 200 metre length of boundary is considered.
- f) Condition 6.9 (e) is not breached where a tree is accidentally felled into an Owl exclusion zone.
- g) A tree that is accidentally felled into an Owl exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.9 (e).
- h) A tree that is felled into an Owl exclusion zone under condition 6.9 (e), or accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester;
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

AMENDMENT 5
1 March 2013
Condition 6.9 d)
replaced

AMENDMENT 2
23 April 2003
Condition 6.9(e)-j)
added
Ref Appendix E

6.9.1 Large Forest Owls: Site Based Approach

(Note: The site based approach attempts to ensure that sufficient habitat suitable for large forest owls is protected in the vicinity of a record of the species. Habitat protection aims to protect roost and nest sites and sufficient habitat in suitable condition to support populations of prey species and in suitable condition for the foraging behaviour of the owl species. Habitat models are to be used to determine what is suitable habitat. The site based approach is most appropriate for single records or small scattered patches of forest or both.)

Where there is a record of Powerful Owl, Masked Owl or Barking Owl within a compartment or within two kilometres outside the boundary of the compartment, the following must apply:

- a) A two kilometres radius planning area must be identified. This planning area must be centred on the record or records of the same species of owl. The radius of the planning area must be measured from the record. Where there is more than one record of the same species of owl, the radius of the planning area must be measured from a point located equidistant from the majority of records, where possible.
- b) Within this planning area an exclusion zone, or exclusion zones, of a total of 300 hectares must be implemented.

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- c) Where there are records of nests or roosts of one or more of these species, these must be contained within exclusion zones. Planning and placement of exclusion zones should maximise the inclusion of other types of owl records within exclusion zones.
- d) The exclusion zone must encompass Category 1 habitat available in the planning area. In the event that there is not sufficient area of Category 1 habitat to meet the requirements of condition 6.9.1 (b) above, Category 2 habitat must be utilised. In the event that there is not sufficient area of Category 1 and 2 habitat to meet the requirements of condition 6.9.1 (b) above, Category 3 habitat must be utilised. In the event that there is not sufficient area of Category 1, Category 2 and Category 3 habitat to meet the requirement of condition 6.9.1 (b) above, Category 4 habitat must be utilised. In the event that there is not sufficient area of Category 1, Category 2, Category 3 and Category 4 habitat to meet the requirements of condition 6.9.1 (b) above, Category 5 habitat must be utilised.
- e) Habitat categories are ranked as follows, from highest to lowest:
 - i. Category 1: Class 1 modelled habitat;
 - ii. Category 2: Class 2 modelled habitat;
 - iii. Category 3: High Conservation Value Old Growth Forest;
 - iv. Category 4: Class 3 modelled habitat; and then
 - v. Category 5: any other areas of suitable habitat.
- f) Modelled habitat and High Conservation Value Old Growth Forest occurring in statutory reserves within the two kilometres radius may be used to meet the exclusion zone requirements, where it is consistent with the requirements of condition 6.9.1 (c) and (d) above.
- g) The shape of exclusion zones should minimise the boundary to area ratio. Where appropriate, exclusion zones should be circular in shape. Long and linear strips should be avoided where possible.

(Note: Circular or compact areas have the lowest boundary to area ratio, while linear or fragmented ones the highest. Areas which generally conform to a circular or square shape have a low boundary to area ratio. As a guide, "low" could be considered to be an area where the longer axis of the area is less than twice as long as the shorter axis.)
- h) Where there are records of more than one species of owl within the two kilometres planning area, exclusion zones totalling 300 hectares for each species must be implemented. These exclusion zones must be consistent with the requirements of this condition. Areas retained for different owl species may overlap.
- i) Where there are two or more records of one species of owl consecutively less than two kilometres apart but collectively spreading over an area greater than two kilometres in any direction then advice on the location of the planning area must be sought from the NPWS.
- j) If a record of one of these species is on private property within two kilometres of SFNSW estate, then the 1,200 hectare (equivalent to two kilometres radius) planning area must be positioned on public land as close as possible to the record.

6.9.2 Large Forest Owls: Landscape Approach

(Note: The landscape approach attempts to ensure that a network of habitat is maintained within the area being planned. The landscape approach is most suitable for large forested areas, especially with numerous records of large forest owls. As part of this approach large areas of habitat are to be protected. Habitat to be retained is to be identified using habitat models. The condition provides a mechanism for apportioning habitat to be retained between the existing reserves and the production forest.)

- a) The planning area should be between 5,000 to 15,000 hectares in size. Smaller or larger planning areas should be avoided, but may be appropriate in particular circumstances. Where SFNSW uses smaller or larger planning areas, the justification for this must be clearly documented. This documentation must be kept on the relevant file and be made available on request by NPWS.
- b) The planning area can only contain public lands, private land must not be included.

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- c) A minimum of 25% of the planning area must be retained as exclusion zones. Areas of statutory reserves can be used to meet the requirements of exclusion zones, where consistent with the requirements of condition 6.9.2 (d), (e) and (f) below. Other exclusion zones within SFNSW estate outside of statutory reserves (eg., high conservation value old growth forest, stream exclusion zones etc) can be used to meet the exclusion zone requirements, where consistent with the requirements of condition 6.9.2 (d), (e) and (f) below.
- d) Of the areas to be retained in condition 6.9.2 (c) above, a minimum of 30% must be retained as exclusion zones in SFNSW estate outside of statutory reserves. Where existing statutory reserves comprise 25% or more of the planning area, then the minimum area to be retained in SFNSW estate outside of statutory reserves must be 10% of SFNSW estate outside of statutory reserves within the planning area.
- e) Of the areas to be retained in SFNSW estate outside of statutory reserves, referred to condition 6.9.2 (d) above, a minimum of 30% must be retained in patches at least 50 hectares in size. The shape of exclusion zones should minimise the boundary to area ratio. Long, linear strips must not be counted towards meeting the requirement to retain these patches.
- (Note: Circular or compact areas have the lowest boundary to area ratio, while linear or fragmented ones the highest. Areas which generally conform to a circular or square shape have a low boundary to area ratio. As a guide, “low” could be considered to be an area where the longer axis of the area is less than twice as long as the shorter axis.)*
- f) In selecting areas to be retained as exclusion zones within the planning area the following design rules must be followed:
- i. Both the Powerful Owl and Masked Owl must be catered for. Where these two species are being planned for, the retained habitat must comprise 50% Masked Owl and 50% Powerful Owl habitat. Where there is either a record of a Barking Owl; OR Barking Owl modelled habitat within the planning area; OR both, then the Barking Owl must be catered for in addition to Powerful Owl and Masked Owl. In these cases the retained habitat must comprise 45% Powerful Owl habitat, 45% Masked Owl habitat and 10% Barking Owl habitat.
 - ii. The area of retained habitat for each of the species must be based on the proportion of each modelled habitat class that is present within the planning area.
 - iii. Where there are records of nests or roosts of one or more of these species, these must be contained within exclusion zones. Planning and placement of exclusion zones should maximise the inclusion of other types of owl records within exclusion zones.
- g) The worked example of the application of the Landscape Approach in Schedule 8 of this licence should be followed when applying this condition.

6.10 Rufous Scrub-bird *Atrichornis rufescens*

If there is a record of Rufous Scrub-bird in a compartment or within 300 metres outside the boundary of a compartment, the following must apply:

An exclusion zone must be implemented which encompasses all Rufous Scrub-bird microhabitat (as defined in Schedule 9 of this licence) within a 300 metres radius of the record.

- a) An additional exclusion zone of at least 20 metres wide must be implemented around all microhabitat referred to in condition 6.10 (a) above.

AMENDMENT 5
1 March 2013
Condition 6.11
replaced

6.11 Swift Parrot *Lathamus discolor*, Regent Honeyeater *Xanthomyza Phrygia*, and Black-chinned Honeyeater (eastern sub-species) *Melithreptus gularis gularis*

Where there is a record of Swift Parrot, Regent Honeyeater or Black-chinned Honeyeater (eastern sub-species) in a compartment, the following must apply:

- a) At least ten eucalypt feed trees must be retained within every two hectares of net logging area.
- b) Where a Swift Parrot, Regent Honeyeater or Black-chinned Honeyeater (eastern sub-species) is observed feeding, the tree in which it is feeding must be retained.
- c) The trees referred to in condition 6.11 (a) and (b) above must be marked for retention. Where retained eucalypt feed trees also meet the requirements of hollow-bearing or recruitment trees, the retained eucalypt feed tree may be counted as a hollow-bearing or recruitment tree.

AMENDMENT 2
23 April 2003
Condition 6.12
replaced
Ref Appendix E

6.12 Brush-tailed Phascogale *Phascogale tapoatafa*

- a) Where there is a Brush-tailed Phascogale record in a compartment or within 500 metres outside the boundary of a compartment SFNSW must, for the purpose of protecting the Brush-tailed Phascogale and its habitat, apply either the Site Based Approach as set out in condition 6.12.1 or the Landscape Approach as set out in condition 6.12.2.
- b) SFNSW must notify NPWS in writing of the areas to which the Landscape Approach will be applied by 1 December 2003 or, if specified forestry activities are due to commence in an area prior to that date, the notification must occur prior to the commencement of activities. Notification must demonstrate compliance with condition 6.12.2, and include a map at an appropriate scale showing the relevant areas.
- c) SFNSW may change from the Site Based Approach to the Landscape Approach, in accordance with condition 6.12.2. However, SFNSW may not change from the Landscape Approach to the Site Based Approach. SFNSW must notify NPWS of a change from the Site-based Approach to the Landscape Approach within ten working days of the change of approaches and prior to specified forestry activities commencing in the area.
- d) Where a change from the Site Based Approach to the Landscape Approach has occurred, SFNSW must continue to retain habitat previously retained in the Site Based Approach.

6.12.1 Brush-tailed Phascogale: Site Based Approach

(Note: The Site Based Approach attempts to ensure that sufficient suitable Brush-tailed Phascogale habitat is protected in the vicinity of a record of the species. Habitat protection aims to protect den sites and sufficient habitat in suitable condition to support the foraging behaviour of Brush-tailed Phascogale. The Site Based Approach is most appropriate for single records or scattered records or both.)

Where SFNSW has chosen to apply the Site Based Approach in accordance with condition 6.12(a), the following applies:

- a) A 500 metres radius planning area must be identified. This planning area must be centred on the record or records of Brush-tailed Phascogale. The radius of the planning area must be measured from the record. Where there is more than one record the radius of the planning area must be measured from a point located equidistant from the majority of the records.
- b) Within this planning area an exclusion zone, or exclusion zones, totalling 20 hectares must be implemented.
- c) Trees within the exclusion zone must not be used to meet tree retention requirements of condition 5.6.
- d) Specified forestry activities, with the exception of road re-opening and snig track re-opening and use, where there is no other practical means of access, are prohibited in these exclusion zones.
- e) Where there are records of Brush-tailed Phascogale dens, these must be contained within exclusion zones. Planning and placement of exclusion zones should maximise the inclusion of other types of Brush-tailed Phascogale records within exclusion zones.

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- f) The exclusion zone must encompass Category 1 habitat available in the planning area. In the event that there is not sufficient area of Category 1 habitat to meet the requirements of condition 6.12.1 (b) above, Category 2 habitat must be utilised. In the event that there is not sufficient area of Category 1 and 2 habitat to meet the requirements of condition 6.12.1 (b) above, Category 3 habitat must be utilised. In the event that there is not sufficient area of Category 1, Category 2 and Category 3 habitat to meet the requirement of condition 6.12.1 (b) above, Category 4 habitat must be utilised.
- g) Habitat qualities are ranked as follows (from highest to lowest):
- i. Category 1: Brush-tailed Phascogale habitat - Category 1;
 - ii. Category 2 Brush-tailed Phascogale habitat - Category 2;
 - iii. Category 3: Class 1 & Class 2 modelled Brush-tailed Phascogale habitat;
 - iv. Category 4: any other areas of suitable Brush-tailed Phascogale habitat.
- h) Category 1, 2 and 3 habitat occurring in statutory reserves within the 500 metres radius may be used to meet the exclusion zone requirements, where it is consistent with the requirements of condition 6.12.1 (e) and (f) above.
- i) Individual patch size of exclusion areas must exceed 7 ha.
- j) The shape of exclusion zones should minimise the boundary to area ratio. Where appropriate, exclusion zones should be circular in shape. Long and linear strips should be avoided where possible.
- (Note: Circular or compact areas have the lowest boundary to area ratio, while linear or fragmented ones have the highest boundary to area ratio. Areas which generally conform to a circular or square shape have a low boundary to area ratio. As a guide, “low” could be considered to be an area where the longer axis of the area is less than twice as long as the shorter axis.)
- k) Where there are two or more Brush-tailed Phascogale records consecutively less than 500 metres apart but collectively spreading over an area greater than 500 metres in any direction then advice on the location of the planning area must be sought from the NPWS.
- l) If a record of Brush-tailed Phascogale is on private property within 200 metres of SFNSW estate, then a 500 metres radius planning area must be located on State Forest as close as possible to the record.
- m) The felling of trees across the boundary of a Brush-tailed Phascogale exclusion zone is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the zone, whatever 200 metre length of boundary is considered.
- n) Condition 6.12.1 (m) is not breached where a tree is accidentally felled into a Brush-tailed Phascogale exclusion zone.
- o) A tree that is accidentally felled into a Brush-tailed Phascogale exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.12.1 (m).
- p) A tree that is felled into a Brush-tailed Phascogale exclusion zone under condition 6.12.1 (m), or accidentally, may be removed only in accordance with the following rules:
- i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

6.12.2 Brush-tailed Phascogale: Landscape Approach

(Note: The Landscape Approach attempts to ensure that preferred foraging and den trees are maintained within the planning area. The Landscape Approach is most suitable for large areas of suitable habitat, especially with numerous records of phascogales. Habitat features are to be retained across each hectare of production forest in the landscape).

Where SFNSW has chosen to apply the Landscape Approach in accordance with condition 6.12(a), the following applies:

- h) SFNSW must identify a planning area where the Landscape Approach is to be applied. The planning area may only contain SFNSW estate, and must be made up of adjacent, entire compartment units totalling at least 1000 ha.
- b) Within identified landscapes a minimum of eight rough-barked trees must be retained per two hectares of net logging area for foraging by Brush-tailed Phascogales. Retained trees must represent the range of rough-barked tree species that occur in the area. Trees retained to meet this condition must be in addition to those trees retained to meet the requirements of condition 5.6.
- c) Trees for retention must be selected from late mature, over-mature or senescent trees, where available.
- d) Trees for retention must be selected from trees greater than 70 cm dbhob. Where trees greater than 70cm dbhob are not present, then trees with the next largest dbhob must be retained.
- e) Retained trees must be marked for retention.
- f) Large, hollow-bearing stags which are potential den trees, should be retained where their retention is consistent with safe working practice.
- g) Where there is a conflict between condition 6.12.2(b) and 6.12.2(d), the requirement for the retention of trees greater than 70cm dbhob must prevail.

(Note: Preferred rough-barked trees for foraging include bloodwoods, ironbarks, mahoganies, boxes, tallowwood and stringybarks. Where these are not available turpentine, blackbutt and grey-gums are also suitable rough-barked foraging trees.)

AMENDMENT 2
23 April 2003
Condition 6.13
replaced
Ref Appendix E

6.13 Hastings River Mouse Pseudomys oralis

Where there is a record of a Hastings River Mouse in the compartment or within 200 metres outside the boundary of the compartment, the following must apply:

- a) A 12 ha exclusion zone that takes in as much Suitable Habitat for Hastings River Mouse as practical, must be established around the record. The exclusion zone need not be symmetrical and should, where possible, link to other areas excluded from harvesting activities.
- b) The felling of trees across the boundary of a Hastings River Mouse exclusion zones (established under condition 6.13 (a) above) is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Hastings River Mouse habitat or exclusion zone, whatever 200 metre length of boundary is considered.
- c) Condition 6.13 (c) is not breached where a tree is accidentally felled into a Hastings River Mouse exclusion zone.
- d) A tree that is accidentally felled into a Hastings River Mouse exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.13 (c).
- e) A tree that is felled into a Hastings River Mouse exclusion zone under condition 6.13 (c), or accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and

AMENDMENT 4
7 November 2011
Omit clauses insert
new
Ref Appendix E

- ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

6.14 Koala Phascolarctos cinereus

AMENDMENT 5
1 March 2013
Condition 6.14 a)-
c) replaced with
new condition 6.14
a)

- a) The following must apply wherever Koala mark-up searches have identified Koala high use areas or Koala intermediate use areas:
 - i. Specified forestry activities are prohibited within all Koala high use areas. A 20 metres wide exclusion zone must be implemented around the boundary of Koala high use areas.
 - ii. In Koala intermediate use areas, per two hectares of net logging area ten primary browse trees must be retained where available. These trees must be marked for retention. Within intermediate use compartments, Australian Group Selection silvicultural techniques are prohibited in preferred forest types.
- b) The felling of trees into a Koala high use area is prohibited. The felling of trees across the boundary of the exclusion zone established under condition 6.14 (c) (i) is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the exclusion zone, whatever 200 metre length of boundary is considered.
- c) Condition 6.14 (d) is not breached where a tree is accidentally felled into a Koala high use area or exclusion zone.
- d) A tree that is accidentally felled into an exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.14 (d).
- e) A tree that is felled into an exclusion zone under condition 6.14 (c), or accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree (including the crown) is lifted out of the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

AMENDMENT 2
23 April 2003
Condition 6.14d)-
i) added
Ref Appendix E

(Note: A failure to comply with the requirements of a Local Koala Management Plan will be regarded as a breach of this licence.) [This note applied to previous versions of the licence (2003 to 2013)]

AMENDMENT 2
23 April 2003
Condition 6.15
replaced
Ref Appendix E

6.15 Spotted-tailed Quoll Dasyurus maculates

- a) An exclusion zone of at least 12 hectares must be implemented around Spotted-tailed Quoll maternal den sites. This exclusion zone must be linked to protection zones implemented in condition 5.7.
- b) An exclusion zone of at least 3.5 hectares must be implemented around Spotted-tailed Quoll permanent den sites. This exclusion zone must be linked to protection zones implemented in condition 5.7.
- c) An exclusion zone of at least 12 hectares must be implemented around Spotted-tailed Quoll latrine sites.
- d) Planning and placement of exclusion zones referred to in condition 6.15 (a), (b) and (c) above must maximise the inclusion of Spotted-tailed Quoll records.
- e) The felling of trees across the boundary of an exclusion zone established under conditions 6.15 a), (b) or (c) above is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Tiger Quoll exclusion zone, whatever 200 metre length of boundary is considered.
- f) Condition 6.15 (g) is not breached where a tree is accidentally felled into a Tiger Quoll exclusion zone.

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- g) A tree that is accidentally felled into a Tiger Quoll exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.15 (e).
- h) A tree that is felled into a Tiger Quoll exclusion zone under condition 6.15 (e), or accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- j) Protection zones must not be counted towards exclusion zones referred to in condition 6.15 (a) and (b) above.

AMENDMENT 2
23 April 2003
Condition 6.16
replaced
Ref Appendix E

6.16 *Squirrel Glider* *Petaurus norfolcensis*

Where there is a Squirrel Glider record in a compartment or within 250 metres outside the compartment boundary (unless specified otherwise in this condition), the following must apply:

- a) A 250 metres radius planning area must be identified. This planning area must be centred on the record, or records, of the Squirrel Glider. The radius of the planning area must be measured from the record. Where there is more than one record the radius of the planning area must be measured from a point located equidistant from the majority of records, where possible.
- b) Within this planning area an exclusion zone, or exclusion zones, totalling eight hectares must be implemented.
- c) The felling of trees across the boundary of a Squirrel Glider exclusion zone established under conditions 6.16 b) below is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Squirrel Glider exclusion zones, whatever 200 metre length of boundary is considered.
- d) Condition 6.16 (c) is not breached where a tree is accidentally felled into a Squirrel Glider exclusion zone.
- e) A tree that is accidentally felled into a Squirrel Glider exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.16 (c).
- f) A tree that is felled into a Squirrel Glider exclusion zone under condition 6.16 (c), or accidentally as described in condition 6.16 (e), may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.
- g) Where there are records of Squirrel Glider dens, these must be contained within exclusion zones. Planning and placement of exclusion zones should maximise the inclusion of other types of Squirrel Glider records within exclusion zones.
- h) The exclusion zone must encompass Category 1 habitat available in the planning area. In the event that there is not sufficient area of Category 1 habitat to meet the requirements of condition 6.16 (b) above, Category 2 habitat must be utilised. In the event that there is not sufficient area of Category 1 and 2 habitat to meet the requirements of condition 6.16 (b) above, Category 3 habitat must be utilised. In the event that there is not sufficient area of Category 1, Category 2 and Category 3 habitat to meet the requirement of condition 6.16 (b) above, Category 4 habitat must be utilised. In the event that there is not sufficient area of Category 1, Category 2, Category 3 and Category 4 habitat to meet the requirement of condition 6.16 (b) above, Category 5 habitat must be utilised.

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- i) Habitat categories are ranked as follows (from highest to lowest):
- i. Category 1: Class 1 modelled habitat;
 - i. Category 2: Class 2 modelled habitat;
 - ii. Category 3: High Conservation Value Old Growth Forest;
 - iii. Category 4: Class 3 modelled habitat;
 - iv. Category 5: any other areas of suitable habitat.
- j) Modelled habitat and High Conservation Value Old Growth Forest occurring in statutory reserves within the 250 metres radius may be used to meet the exclusion zone requirements, where it is consistent with the requirements of condition 6.16 (g) and (h) above.
- k) The shape of exclusion zones should minimise the boundary to area ratio. Where appropriate, exclusion zones should be circular in shape. Long and linear strips should be avoided where possible.
- (Note: Circular or compact areas have the lowest boundary to area ratio, while linear or fragmented ones have the highest. Areas which generally conform to a circular or square shape have a low boundary to area ratio. As a guide, “low” could be considered to be an area where the longer axis of the area is less than twice as long as the shorter axis.)
- l) Where there are two or more Squirrel Glider records consecutively less than 250 metres apart but collectively spreading over an area greater than 250 metres in any direction then advice on the location of the planning area must be sought from the NPWS.
- m) If a Squirrel Glider record is on private property within 100 metres of SFNSW estate, then the equivalent of a 250 metres radius planning area must be located on public land as close as possible to the record.
- n) When ten of these sites are recorded on SFNSW estate over a two year period separated by at least two kilometres within a 15 kilometres radius, SFNSW may apply to NPWS for a review of this condition.

(Note: The NPWS will advise SFNSW of the recommendation, made by NPWS in relation to condition 6.16 (n) above, to the relevant Ministers, prior to consideration by the relevant Ministers.)

AMENDMENT 2
23 April 2003
Condition 6.17
replaced
Ref Appendix E

6.17 Yellow-bellied Glider *Petaurus australis*

- a) A 50 metres radius exclusion zone must be implemented around Yellow-bellied Glider dens.
- b) The felling of trees across the boundary of an exclusion zone established under conditions 6.17 a) above is prohibited except where no more than six (6) trees containing timber logs are felled across the boundary in any 200 metre length of the boundary of the Yellow-bellied Glider exclusion zone, whatever 200 metre length of boundary is considered.
- c) Condition 6.17 (b) is not breached where a tree is accidentally felled into a Yellow-bellied Glider exclusion zone.
- d) A tree that is accidentally felled into a Yellow-bellied Glider exclusion zone may be removed from the zone, but only if it contains a timber log. The tree may be removed even if the total number of trees removed in the harvesting operation concerned will, as a result, exceed the number calculated by applying the principle set out in condition 6.17 (b).
- e) A tree that is felled into a Yellow-bellied Glider exclusion zone under condition 6.17 (b), or accidentally, may be removed only in accordance with the following rules:
 - i. the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
 - ii. in removing the tree (or any logs into which it is cut), any disturbance to the ground and soil must be minimised as far as practicable.

APPENDIX B – LOWER NORTH EAST

- f) All Yellow-bellied Glider sap feed trees must be retained. All Yellow-bellied Glider Sap feed trees must be marked for retention.
- g) Where there is a record of a Yellow-bellied Glider in a compartment or within 100 metres outside the boundary of the compartment, the following must apply:
 - i. Within a 100 metres radius of each retained Yellow-bellied Glider sap feed tree, observation or den site record, 15 feed trees must be retained. Yellow-bellied Glider sap feed trees must not be counted towards these 15 feed trees. Retained feed trees must have good crown development and should have minimal butt damage and should not be suppressed. Mature and late mature trees must be retained as feed trees where these are available.
 - ii. Within a 200 metres radius of a Yellow-bellied Glider call detection site record, 15 feed trees must be retained. Retained feed trees must have good crown development and should have minimal butt damage and should not be suppressed. Mature and late mature trees must be retained as feed trees where these are available.
 - iii. The feed trees retained in condition 6.17 (g) (i) and (ii) must be of the same species as the identified sap feed tree or identified den tree, or should be trees that shed their bark in long strips, eg. species from Blue, Flooded, Grey, Red and White Gum groups.
 - iv. The feed trees retained in condition 6.17 (g) (i) and (ii) must be marked for retention.

6.18 Wombat *Vombatus ursinus*

For areas north of Oxley Highway:

- a) A 20 metres radius exclusion zone must be established around all entrances to burrows where the burrow is greater than one metre in length.

AMENDMENT 5
1 March 2013
Condition 6.18 A
added

6.18 A Broad-toothed Rat *Mastacomys fuscus*

- a) Where Suitable habitat for the Broad-toothed Rat extends beyond the boundary of a wetland, soak, bog, seepage or riparian exclusion zone, the boundary of the suitable habitat must be identified and an additional 20m exclusion zone must be applied to it.
- b) Any area of Suitable habitat for the Broad-toothed Rat and exclusion zone that is greater than 0.1 ha must be marked in the field and mapped on the operational map.

(Note: this condition is applicable to the Broad-toothed Rat generally as well as the Barrington Tops Broad-toothed Rat endangered population.)

6.19 Common Blossom Bat *Syconycteris australis*

In areas of *Syconycteris australis* modelled habitat, at least 75% of mature individuals of each species of *Banksia integrifolia*, *Melaleuca quinquenervia*, *Grevillea robusta* and *Callistemon viminalis* within the net logging area must be protected from damage by specified forestry activities. During harvesting operations, the potential for damage to these trees must be minimised by utilising techniques of directional felling.

6.20 Golden-tipped Bat *Kerivoula papuensis*

Where there is a record of *Kerivoula papuensis* within a compartment or within 200 metres outside the boundary of the compartment, the following must apply:

- a) Exclusion zones at least 30 metres wide must be implemented on both sides of all first order streams and second order streams within a 200 metres radius of the record.
- b) The width of exclusion zones referred to in condition 6.20 (a) above must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.

AMENDMENT 2
23 April 2003
Condition 6.20a)
replaced
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 6.21
omitted

6.21 Condition omitted (Amendment 5)

6.22 Threatened Flora: 50 metres Exclusion Zone, all individuals

Where there is a record of any of the species listed in Table 1 or Table 2 below within the compartment or within 50 metres outside the boundary of the compartment, the following must apply:

- An exclusion zone of at least 50 metres radius must be implemented around all individuals.
- An exclusion zone of at least 50 metres wide must be implemented around all groups of individuals. A group is defined as more than one individual located less than 20 metres apart.

AMENDMENT 5
1 March 2013
Condition 6.22,
Table 1 – species
modified

Table 1: Threatened plants to which condition 6.22 must be applied that are known to occur, or considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

Dendrobium melaleucaphilum
Grevillea obtusiflora spp. *Obtusiflora*
Prostanthera askania (syn. *P.* sp. 6 Strickland State Forest)

AMENDMENT 5
1 March 2013
Condition 6.22,
Table 2 – species
modified

Table 2: Threatened plants to which condition 6.22 must be applied that are not currently known to occur, or not considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

<i>Acalypha eremorum</i>	<i>Neoastelia spectabilis</i>
<i>Acronychia littoralis</i>	<i>Oberonia complanata</i>
<i>Aldrovanda vesiculosa</i>	<i>Olax angulata</i>
<i>Apatophyllum constablei</i>	<i>Peristeranthus hillii</i>
<i>Arthropteris palisotii</i>	<i>Persicaria elatior</i>
<i>Cadellia pentastylis</i>	<i>Phaius australis</i>
<i>Eleocharis tetraquetra</i>	<i>Phaius tankervilleae</i>
<i>Euphrasia collina</i> subsp. <i>muelleri</i>	<i>Prostanthera</i> sp. Bundjalung (syn. <i>P. palustris</i>)
<i>Euphrasia ruptura</i> (syn. <i>E.</i> sp. Tamworth)	<i>Pilotum complanatum</i>
<i>Eucalyptus camphora</i> subsp. <i>relicta</i>	<i>Sarcochilus fitzgeraldii</i>
<i>Gentiana wissmannii</i>	<i>Syzygium paniculatum</i>
<i>Hypolepis elegans</i>	<i>Tarenna cameronii</i>
<i>Lepidium hyssopifolium</i>	<i>Tinospora tinosporoides</i>
<i>Lepidium peregrinum</i>	<i>Zieria floydii</i>
<i>Myriophyllum implicatum</i>	<i>Zieria prostrata</i>

6.23 Threatened and Protected Flora: 20 metres Exclusion Zones, all individuals

Where there is a record of any of the species listed in Table 3 or Table 4 below within the compartment or within 20 metres outside the boundary of the compartment, the following must apply:

- An exclusion zone of at least 20 metres radius must be implemented around all individuals.
- An exclusion zone of at least 20 metres wide must be implemented around all groups of individuals. A group is defined as more than one individual located less than 20 metres apart.

AMENDMENT 5
1 March 2013
Condition 6.23,
Table 3 –
explanation added

Table 3: Threatened and protected plants to which condition 6.23 must be applied that are known to occur, or considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

<i>Acacia pubescens</i>	<i>Leucopogon confertus</i>
<i>Angophora inopina</i>	<i>Melaleuca biconvexa</i>
<i>Asterolasia</i> sp. Dungowan Creek	<i>Oberonia titania</i>
<i>Bertya</i> sp. Clouds Creek	<i>Olearia cordata</i>
<i>Banksia conferta</i> subsp. <i>conferta</i>	<i>Phebalium glandulosum</i> subsp. <i>eglandulosum</i>
<i>Chiloglottis platyptera</i>	<i>Philotheca myoporoides</i> subsp. <i>Obovatifolia</i> (syn. <i>P. obovatifolia</i>)
<i>Corybas dowingii</i>	<i>Pomaderris brunnea</i>
<i>Cryptostylis hunteriana</i>	<i>Pomaderris queenlandica</i>
<i>Diuris disposita</i>	<i>Pterostylis cucullata</i>
<i>Diuris flavescens</i>	<i>Pterostylis elegans</i> #

AMENDMENT 5
1 March 2013
Condition 6.23,
Table 3 - species
modified

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<i>Diuris pedunculata</i>	<i>Pterostylis gibbosa</i>
<i>Dracophyllum macranthum</i>	<i>Rhizanthella slateri</i>
<i>Eucalyptus fracta</i>	<i>Rotala tripartita</i>
<i>Eucalyptus glaucina</i> - Southern Metapopulation Unit	<i>Rutidosis heterogama</i> - Inland Metapopulation Unit
<i>Eucalyptus rubida</i> subsp. <i>barbigerorum</i>	<i>Styphelia perileuca</i>
<i>Grevillea guthrieana</i> - Booral Metapopulation	<i>Triplarina imbricata</i>
<i>Hakea fraseri</i>	<i>Tylophora linearis</i>
<i>Hedyotis galioides</i>	<i>Typhonium</i> sp. aff. <i>brownii</i>
<i>Hibbertia procumbens</i>	<i>Tylophora woollsii</i> #
<i>Hicksbeachia pinnatifolia</i> - Southern Metapopulation Unit	<i>Zieria lasiocaulis</i>

Species for which a Species Management Plan may be appropriate (see 6.28)

Table 4: Threatened plants to which condition 6.23 must be applied that are not currently known, or not considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

<i>Acacia dangarensis</i>	<i>Genoplesium baueri</i>
<i>Alexfloydia repens</i>	<i>Genoplesium insignis</i>
<i>Allocasuarina simulans</i>	<i>Gingidia montana</i>
<i>Almaleea cambagei</i>	<i>Grevillea mollis</i>
<i>Arthraxon hispidus</i> #	<i>Hibbertia superans</i>
<i>Asperula asthenes</i>	<i>Hibbertia tenuifolia</i>
<i>Bertya ingramii</i>	<i>Homoranthus bornhardtiensis</i>
<i>Boronia granitica</i>	<i>Lindernia alsinoides</i>
<i>Caesia parviflora</i> var. <i>minor</i>	<i>Maundia triglochinosoides</i>
<i>Caladenia porphyrea</i>	<i>Melaleuca deanei</i>
<i>Caladenia tessellata</i>	<i>Monotaxis macrophylla</i>
<i>Callistemon linearifolius</i>	<i>Ozothamnus tessellatus</i>
<i>Chamaesyce psammogeton</i>	<i>Persoonia pauciflora</i>
<i>Chiloglottis anaticeps</i>	<i>Picris evae</i>
<i>Dillwynia tenuifolia</i>	<i>Pimelea venosa</i>
<i>Diuris arenaria</i>	<i>Pomaderris reperta</i>
<i>Diuris venosa</i>	<i>Pomaderris sericea</i>
<i>Eucalyptus approximans</i>	<i>Prostanthera cineolifera</i>
<i>Eucalyptus castrensis</i>	<i>Prostanthera cryptandroides</i>
<i>Eucalyptus dissita</i>	<i>Prostanthera junonis</i>
<i>Eucalyptus magnificata</i>	<i>Pseudanthus ovalifolius</i>
<i>Eucalyptus nicholii</i>	<i>Pultenaea maritima</i>
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	<i>Rutidosis heterogama</i> - Coastal Metapopulation Unit
<i>Eucalyptus pumila</i>	<i>Senecio linearifolius</i> var. <i>dangarensis</i>
<i>Euphrasia orthocheila</i> subsp. <i>peraspera</i>	<i>Sophora tomentosa</i>
<i>Galium australe</i>	<i>Thelymitra</i> sp. 'adorata'
<i>Gaultheria viridicarpa</i> subsp. <i>viridicarpa</i>	<i>Zannichellia palustris</i>

Species for which a Species Management Plan may be appropriate (see 6.28)

AMENDMENT 5
1 March 2013
Condition 6.23,
Table 4 –
explanation added

AMENDMENT 5
1 March 2013
Condition 6.23,
Table 4 – species
modified

AMENDMENT 5
1 March 2013
Condition 6.24
omitted

6.24 Condition omitted (Amendment 5)

Table 5: Table omitted (Amendment 5)

Table 6: Table omitted (Amendment 5)

6.25 Threatened and Protected Flora: 20 metres Exclusion Zone, 90% of individuals

Where there is a record of any of the species listed in Table 7 or Table 8 within the compartment or within 20 metres outside the boundary of the compartment, the following must apply:

- An exclusion zone or exclusion zones of at least 20 metres wide must be implemented around 90% of individuals.
- The exclusion zone or exclusion zones must include areas where the density of individuals is greatest.

(Note: Where there are few individuals within the compartment and the individuals are widely dispersed within the compartment, an exclusion zone of at least 20 metres radius must be implemented around at least 90% of individuals. Where there are a large number of individuals within the compartment and they occur in groups, the exclusion zone or exclusion zones may be positioned around the group or groups. A group is defined as more than one individual located less than 20 metres apart.)

Table 7: Threatened and protected plants to which condition 6.25 must be applied that are known to occur, or considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

<i>Acacia bynoeana</i>	<i>Grevillea parviflora</i> ssp. <i>parviflora</i>
<i>Acacia courtii</i>	<i>Grevillea guthrieana</i> - Carrai Metapopulation
<i>Allocastrum defungens</i>	<i>Grevillea scortechinii</i> subsp. <i>sarmentosa</i>
<i>Ancistrachne maidenii</i> #	<i>Gastrodia sesamoides</i> (PNP)
<i>Asterolasia elegans</i>	<i>Hibbertia hexandra</i> - Southern Metapopulation Unit
<i>Callitris oblonga</i>	<i>Leptospermum deanei</i>
<i>Cymbidium canaliculatum</i> (PNP)	<i>Plectranthus nitidus</i>
<i>Cynanchum elegans</i>	<i>Prostanthera densa</i>
<i>Dichanthium setosum</i>	<i>Pterostylis nigricans</i>
<i>Dipodium atropurpureum</i> (PNP)	<i>Tasmannia glaucifolia</i> - Southern Metapopulation Unit
<i>Dipodium pulchellum</i> (PNP)	<i>Tetratea glandulosa</i>
<i>Eucalyptus mckieana</i>	<i>Tetratea juncea</i>
<i>Eucalyptus oresbia</i>	<i>Zieria involucreta</i>

PNP = Protected Native Plant

Species for which a Species Management Plan may be appropriate (see 6.28)

AMENDMENT 5
1 March 2013
Condition 6.25,
Table 7 –
explanation added

AMENDMENT 5
1 March 2013
Condition 6.25,
Table 7 – species
modified

Table 8: Threatened plants to which condition 6.25 must be applied that are not currently known to occur, or not considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

<i>Acacia flocktoniae</i>	<i>Kunzea rupestris</i>
<i>Darwinia biflora</i>	<i>Lasiopetalum longistamineum</i>
<i>Diuris praecox</i>	<i>Philothea ericifolia</i>
<i>Eucalyptus camfieldii</i>	<i>Thesium australe</i>
<i>Grevillea evansiana</i>	<i>Velleia perfoliata</i>
<i>Grevillea shiressii</i>	

AMENDMENT 5
1 March 2013
Condition 6.25,
Table 8 – species
modified

6.26 Threatened and Protected Flora: protection of 90% of individuals

Where there is a record of any of the species listed in Table 9 or Table 10 within the compartment, the following must apply:

- a) A minimum of 90% of individuals must be protected from specified forestry activities. During harvesting operations, the potential for damage to these plants must be minimised by utilising techniques of directional felling.

(Note: Where there are few individuals within the compartment and the individuals are widely dispersed within the compartment, at least 90% of individuals must be protected from specified forestry activities. Where there are a large number of individuals within the compartment and they occur in groups, the group or groups should be protected. A group is defined as more than one individual located less than 20 metres apart.)

Table 9: Threatened plants to which condition 6.26 must be applied that are known to occur, or considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

-
- Acacia chrysotricha* #
 - Calophanoides hygrophiloides* #
 - Commersonia rosea*
 - Euphrasia arguta* #
 - Euphrasia ciliolata* #
 - Hakea archaeoides*
 - Marsdenia longiloba* #
 - Olearia flocktoniae*
 - Senna acclinis* #
 - Tephrosia filipes* #
-

Species for which a Species Management Plan may be appropriate (see 6.28)

Table 10: Threatened plants and protected to which condition 6.25 must be applied that are not currently known, or not considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

-
- Eriostemon myoporoides* ssp. *conduplicatus* (PNP)
 - Haloragis exalata* subsp. *exalata*
 - Haloragis exalata* subsp. *velutina*
 - Muehlenbeckia costata*
-

PNP = Protected Native Plant

6.27 Threatened Flora: Monitoring program

Where there is a record of any of the species listed in Table 11 or Table 12 within the net survey area or within 50 metres outside the boundary of the net survey area, the following must apply:

- a) SFNSW must prepare a monitoring program for the species with the objective of assessing the response of the species to disturbances associated with specified forestry activities.
- b) The monitoring program must be submitted to the NPWS for approval. SFNSW must not commence specified forestry activities in the compartment in the area subject to the monitoring program until NPWS has approved the program in writing.

(Note: The NPWS may amend or vary the program or impose conditions relating to the approval of the program.)

- c) SFNSW must comply with any conditions imposed on the approval as per condition 6.27 (b) above.
- d) FCNSW may choose, with the prior written approval of OEH, to apply a protection condition to those species listed in table 11 marked with an asterisk in lieu of preparing a monitoring program. The decision and approval to impose a protection condition/s will be made on a case by case basis by OEH and:
 - i. The reasons for choosing this alternative approach must be clearly documented in the initial request to OEH;

AMENDMENT 5
1 March 2013
Condition 6.26,
Table 9 –
explanation added

AMENDMENT 5
1 March 2013
Condition 6.26,
Table 9 – species
modified

AMENDMENT 5
1 March 2013
Condition 6.26,
Table 10 – species
modified

AMENDMENT 5
1 March 2013
Condition 6.27 d)
added

APPENDIX B – LOWER NORTH EAST

- ii. Within one week of OEH being notified by FCNSW of a request to apply a protection condition, OEH must consult with FCNSW when preparing the condition;
- iii. Any condition developed under this condition must be implemented otherwise the default monitoring program must be prepared.

Table 11: Threatened plants to which condition 6.27 must be applied that are known to occur, or considered likely to occur, in areas of areas of SFNSW estate outside of statutory reserves.

Amorphospermum whitei - Southern Metapopulation Unit
*Grammitis stenophylla**
*Melaleuca groveana**
Parsonsia dorrigoensis *
Tasmania purpurascens *

* Species for which a Monitoring Programme may be appropriate (see 6.27)

Table 12: Table omitted (Amendment 5)

AMENDMENT 5
1 March 2013
Condition 6.27,
Table 11 –
explanation added

AMENDMENT 5
1 March 2013
Condition 6.27,
Table 11 – species
modified

AMENDMENT 5
1 March 2013
Condition 6.27,
Table 12 omitted

AMENDMENT 5
1 March 2013
Condition 6.28 b)
omitted

6.28 Threatened Flora: Species Management Plans

- a) As an alternative to applying conditions 6.22, 6.23, 6.24, 6.25, 6.26 or 6.27, SFNSW may choose, with the prior written approval of NPWS, to develop a Species Management Plan. The reasons for adopting this alternative approach must be clearly documented in the Species Management Plan. Species Management Plans are to apply to a single species, however multiple species plans may be appropriate where species co-occur.
- b) Species Management Plans are aimed at individual taxa or groups of taxa where it is considered that they can be more appropriately managed by specific measures not included in the conditions listed in conditions 6.22, 6.23, 6.24, 6.25, 6.26 or 6.27.
- c) Species Management Plans must be based on a comprehensive survey of potential habitat within the planning area identified in condition 6.28 (b) above. Species Management Plans must document the species' distribution and abundance in the planning area.
- d) Species Management Plans must clearly document management measures to be undertaken. Such measures may include modification to timber harvesting practices, control of specified burning or grazing regimes, measures to mitigate weed invasion, weed control or reservation of forest types or species habitat from specified forestry activities.
- e) Species Management Plans must incorporate actions specified in approved Recovery Plans where appropriate.
- f) Where necessary, Species Management Plans must include a monitoring program that determines the effect of specified forestry activities on the species and assesses the effectiveness of the management measures in providing for the species' conservation. The need for a monitoring program must be assessed as part of the Species Management Plan.
- g) Species Management Plans must be prepared in consultation with, and submitted for approval by, the NPWS. A condition of this licence will be the implementation of an approved Species Management Plan.
- h) The Species Management Plan must be submitted in writing for approval by the NPWS prior to its implementation and prior to the commencement of specified forestry activities in the compartment.

Condition 7. General survey requirements

- a) Subject to condition 7 b) harvesting operations must not be undertaken in any compartment unless pre-logging and pre-roading surveys have been conducted in accordance with condition 8 Pre-logging and Pre-roading Surveys of this licence.
- b) Pre-logging and pre-roading surveys are not required for the following species where SFNSW choose to implement the species' prescription, as detailed below.

(Note: SFNSW may choose to implement one or more of the following prescriptions in lieu of survey.)

AMENDMENT 5
1 March 2013
Condition 7 b) iv.,
v. and xv omitted
and remaining sub-
conditions
renumbered

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- i. ***Assa darlingtoni***: In Dorrigo Management Area only, an exclusion zone, or exclusion zones, must be implemented to protect all modelled habitat within the compartment.
- ii. ***Philoria spp.***: An exclusion zone, or exclusion zones, must be implemented to protect all modelled habitat within the compartment.
- iii. ***Mixophyes iteratus, M. fleayi and M. balbus***: Exclusion zones at least 30 metres wide must be implemented on both sides of those streams that occur within modelled habitat.
- iv. ***Albert's Lyrebird***: An exclusion zone of at least 20 metres wide must be implemented on both sides of all first order streams in the compartment. An exclusion zone of at least 30 metres wide must be implemented on both sides of all second order streams in the compartment.
- v. ***Powerful Owl, Masked Owl, Barking Owl***: Implement the Landscape Approach as per condition 6.9.2 of this licence; OR for every 1,200 hectares of gross area an exclusion zone or exclusion zones totalling 300 hectares must be implemented as per the requirements of condition 6.9.1 of this licence.
- vi. ***Marbled Frogmouth***: Exclusion zones at least 20 metres wide must be implemented on both sides of all first order streams in the compartment. Exclusion zones of at least 30 metres wide must be implemented on both sides of all second order streams in the compartment.
- vii. ***Rufous Scrub-bird***: Protect all microhabitat (as defined in Schedule 9 of this licence) and implement a 20 metres exclusion zone around this habitat.
- viii. ***Swift Parrot and Regent Honeyeater***: At least ten eucalypt feed trees must be retained within every two hectares of net logging area. These trees must be marked for retention. Where retained eucalypt feed trees also meet the requirements of hollow-bearing tree or recruitment trees, the retained eucalypt feed tree can be counted as a hollow-bearing tree or recruitment tree. Where a Swift Parrot or Regent Honeyeater is observed feeding, the tree in which it is feeding must be retained.
- ix. ***Brush-tailed Phascogale***: Across the net harvestable area of a compartment containing a record or modelled habitat.
1. retain a minimum of eight rough-barked trees per two hectares of net logging area for foraging by Brush-tailed Phascogales. Retained trees must represent the range of rough-barked tree species that occur in the area with preference given to trees of an older growth stage (i.e. late mature trees must be selected in preference to mature trees). Trees retained to meet this condition must be in addition to those trees retained to meet the requirements of condition 5.6.
 2. trees for retention must be selected from late mature, over-mature or senescent trees, where available.
 3. trees for retention that meet conditions (a) and (b) must be selected from trees greater than 70 cm diameter breast height over bark (dbhob). Where trees greater than 70 cm dbhob are not present, then trees must be selected for retention from trees belonging to a cohort of trees with the largest dbhob.
 4. retained trees must be marked for retention.
 5. large, hollow-bearing dead standing trees which are potential den trees should be retained where their retention is consistent with safe working practice.
- x. ***Hastings River Mouse***: An exclusion zone, or exclusion zones, must be implemented to protect all modelled habitat within the compartment.
- xi. ***Squirrel Glider***: An exclusion zone, or exclusion zones, must be implemented to protect all modelled habitat within the compartment.
- xii. ***Yellow-bellied Glider***: All Yellow-bellied Glider sap feed trees must be retained. Within a 100 metres radius of each retained Yellow-bellied Glider sap feed tree, or within a 200 metres radius of a Yellow-bellied Glider call detection site record, 15 feed trees must be retained. Yellow-bellied Glider sap feed trees must not be counted towards these 15 feed trees. Retained feed trees must have good crown development and should have minimal butt damage and should not be suppressed. Mature and late mature trees must be retained as feed

AMENDMENT 2
23 April 2003
Condition 7b)vi
replaced
Ref Appendix E

AMENDMENT 2
23 April 2003
Condition 7b)viii
replaced
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 7 b) ix.
replaced

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trees where these are available. These retained trees should be trees that shed their bark in long strips, eg. species from Blue, Flooded, Grey, Red and White Gum groups. A 50 metres radius exclusion zone must be implemented around Yellow-bellied Glider dens.

AMENDMENT 2
23 April 2003
Condition 7b)xvi
replaced
Ref Appendix E

xiii. *Kerivoula papuensis*: exclusion zones at least 30 metres wide must be implemented on both sides of all first order streams and second order streams within the compartment. The width of these exclusion zones must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.

- c) Condition 7 (b) does not apply to a compartment which contain known habitat or potential habitat of Black-breasted Button-quail. Pre-logging and pre-roading surveys must be conducted in compartments which contain Black-breasted Button-quail known habitat or potential habitat.
- d) Where SFNSW chooses to apply a species' condition in accordance with Condition 7 (b) in lieu of pre-logging and pre-roading surveys, that condition must be implemented for the duration of the harvesting operation.
- e) The same provisions of the relevant species specific condition contained in condition 6 apply to the exclusion zones implemented under condition 7 (b).

AMENDMENT 2
23 April 2003
Condition 7e)
added
Ref Appendix E

Condition 8. Pre-logging and pre-roading surveys

8.1 Survey requirements

- a) Pre-logging and pre-roading surveys must consist of the following:
 - i. Compartment traverse as per condition 8.7 of this licence;
 - ii. Targeted fauna surveys as per condition 8.8 of this licence; and
 - iii. The recording of incidental threatened flora and fauna records as per condition 8.6 of this licence.
- b) Pre-logging and pre-roading surveys must be conducted within the net survey area, and in areas within 50 metres outside the boundary of the net survey area, in compartments where known or potential habitat occurs.
- c) Pre-logging and pre-roading surveys must be carried out in accordance with the following conditions.

(Note: Any variations to the requirements set out in this condition must be approved in writing by NPWS prior to surveys being conducted.)
- d) Pre-logging and pre-roading surveys must be conducted for those species that require the implementation of species-specific and site-specific prescriptions as per condition 1.2 and condition 6 unless condition 7 is implemented for those species.
- e) During pre-logging and pre-roading surveys, all practical steps must be taken to direct survey effort in areas of the highest quality Class modelled habitat, where modelled habitat occurs in the compartment.
- f) The pre-logging and pre-roading survey requirements are based on a minimum survey effort for a standard 200 hectares of net logging area. (200 hectares equates to an average compartment size.)

8.2 Survey timing

- a) SFNSW must plan and conduct surveys in the most appropriate “Survey season” (where specified in Schedule 2 of this licence for flora species, and as specified in condition 8.8 below for fauna species).
- b) SFNSW must not conduct or permit the conduct of harvesting operations in compartments where seasonally appropriate surveys have not been carried out unless SFNSW choose to apply condition 7 (b) where the subject species is listed in that condition.

(Note: Different fauna groups require survey during different seasons, with most groups best surveyed during spring-summer. As well as this, different weather conditions are more appropriate for certain groups, for instance it is most appropriate to survey for frogs after rain.)

8.3 Surveyor experience

- a) SFNSW must ensure that persons conducting pre-logging and pre-roading surveys are suitably experienced and trained. Suitable experience and training includes, but is not limited to:
 - i. Extensive experience with flora and / or fauna survey work.
 - ii. Extensive experience in the field identification of flora and / or fauna. Surveyors must be able to identify the threatened species and habitats of threatened species relevant to the region that require species-specific or site-specific conditions, as well as similar species that may be confused with these. Surveyors must be able to identify features referred to in condition 8.7.2 (b).
 - iii. Familiarisation with herbarium or museum specimens of threatened species requiring species-specific or site-specific conditions, if not already familiar.
 - iv. Relevant tertiary qualifications are preferable but not essential if the above criteria, condition 8.3 (a) i., ii. and iii. are met.
- b) SFNSW must maintain a register of surveyors which details the way in which each surveyor meets the experience criteria specified in condition 8.3 (a) above. The entry in the register relevant to the surveyor must be received by NPWS within ten days of NPWS requesting the entry.

8.4 Survey documentation and reporting

- a) SFNSW must prepare a pre-logging and pre-roading survey report that must include the following:
 - i. Information relating to all of the “Data to Record” sections referred to in this condition.
 - ii. All raw data sheets.
 - iii. Details of previous reliable surveys including, but not limited to, survey methodology, sampling intensity, sample placement and distribution, season of survey and weather conditions.
- b) The Survey Report must be received by NPWS Northern Directorate (or Central Directorate where appropriate) within ten days of NPWS requesting the report.
- c) All survey durations are to be interpreted as time worked in the field, not inclusive of travel time to and from the survey area.

AMENDMENT 2
23 April 2003
Condition 8.4b)
replaced
Ref Appendix E

8.5 Data compilation

- a) The following data must be compiled prior to pre-logging and pre-roading surveys:
 - i. All records of threatened species requiring species-specific or site-specific prescription and all records of the protected species Greater Glider held by, or available to, FCNSW. This must include, but is not limited to, searching the Office of Environment and Heritage Atlas of NSW Wildlife and FCNSW documents, records and other sources of information; and
 - ii. Maps of modelled habitat (with different Classes of habitat indicated) of those species requiring survey.
 - iii. The information required to be collated in condition 8.5 (b) below must be provided to persons conducting pre-logging and pre-roading surveys and harvest planning.
- b) **Data to Record:**
 - i. Date(s) of review.
 - ii. Name of Management Area, State Forest name, compartment number.
 - iii. Name of person(s) conducting review.
 - iv. Results of a database search for threatened flora and fauna records within two kilometres or five kilometres, as appropriate, of the compartment boundary. Records with a reliability of 1 to 5, inclusive, must be searched for.
 - v. Results of a check of SFNSW records for threatened species recorded within two kilometres or five kilometres, as appropriate, of the compartment boundary and any other records readily available.

AMENDMENT 5
1 March 2013
Condition 8.5 a) i.
replaced

APPENDIX B – LOWER NORTH EAST

- vi. A summary of those threatened species records collated under condition 8.5 b) iv. and v. above, including species name, Australian Map Grid co-ordinates, date of record, type of record (eg. observed, heard, road kill, hair analysis), observer's name, and source of record where this information is available.
- vii. Maps of modelled habitat (with different Classes of habitat indicated) of those species requiring survey. These maps are to assist the surveyor in locating potential habitat.
- viii. Habitat descriptions from Schedule 4 of this licence.

8.6 Incidental Threatened Flora and Fauna Records

- a) All SFNSW employees and contractors must identify and record all indications that a threatened species is present, or has been present, within a compartment. Indications include, but are not limited to, an observation of a live or dead individual of a species, or any part of an individual (hair, feathers, skin, bone, teeth or eggs), or a sign that indicates the species' presence (species' call heard, tracks, scratchings, incisions, species in scat, species' scat, species in raptor or owl pellet, nest, roost or den).
- b) Particular emphasis must be placed on identifying and recording the following species: Red Goshawk, Red-tailed Black-Cockatoo, Double-eyed Fig Parrot, Eastern Quoll.
- c) **Data to Record:**
 - i. Species name.
 - ii. Number of individuals.
 - iii. AMG (to within a 100 metres accuracy).
 - iv. Name of State Forest and compartment number that species recorded in.
 - v. Type of record (eg. observed, heard, road kill).
 - vi. Date(s) recorded.
 - vii. Recorder's name.
- d) within compartments containing known habitat or modelled habitat for Hastings River Mouse, Forests NSW employees and contractors must identify areas encountered incidentally that comprise Suitable Habitat for Hastings River Mouse.

AMENDMENT 5
1 March 2013
Condition 8.6 b)
modified

AMENDMENT 4
7 November 2011
Add clause d)
Ref Appendix E

8.7 Pre-logging and Pre-roading Compartment Traverse

- a) A Compartment Traverse must be conducted to search for threatened and protected flora species and certain threatened and protected fauna features.
- b) Samples of flora species that are unfamiliar to the surveyor must be collected and identified or verified by a relevant herbarium.
- c) The threatened and protected flora component and threatened and protected fauna features component can both be conducted at the same time if the surveyor is suitably experienced. Where the two components are conducted at the same time, the minimum survey effort required is ten person hours per 200 hectares of net survey area.

8.7.1 Desktop component

- a) For each 200 hectares of net survey area, a traverse at least four kilometres in distance must be planned within which targeted sampling must be conducted as specified in condition 8.7.2 below.
- b) Air photographs and forest type maps of a suitable scale (1:15,000 to 1:25,000) must be examined when planning the traverse to identify the full range of forest types and environmental gradients within the compartment. The traverse must cover the full range of forest types and environmental gradients within the compartment.
- c) The traverse route must be mapped on a 1:25,000 forest type map.

8.7.2 Field Methodology

a) *Threatened and protected flora component*

- i. For the threatened and protected flora component of the Compartment Traverse, the surveyor(s) must conduct a search in a random meander along the traverse identified in condition 8.7.1 above, searching for and recording those threatened and protected flora species that require species-specific or site-specific conditions. The search should be conducted within the net survey area and in areas 50 metres outside the boundary of the net survey area.
- ii. A minimum of six person hours of flora survey per 200 hectares of net survey area must be conducted along the traverse. Threatened and protected flora species requiring species-specific conditions must be searched for continuously along the traverse.
- iii. If habitats not previously identified in the desktop component are encountered while sampling along the traverse, a proportion of the sampling time should be used to survey these habitats.
- iv. The timing of the threatened and protected flora component of the compartment traverse should take into account flowering periods of the threatened and protected flora species being surveyed (this is particularly relevant to orchids and annual species). Data on known flowering periods of cryptic species is included in Schedule 2 of this licence where this information is available.
- v. Where individuals or groups of individuals of threatened or protected plants requiring conditions are found, the individual or the extent of the group of individuals must be flagged (eg. with flagging tape) by the person conducting the flora survey. The location of the individual or group of individuals must also be marked on the Harvesting Plan map to assist the Supervising Forest Officer in finding the flagged plant(s) during compartment mark up.

b) *Threatened and protected fauna features component*

- i. For the threatened and protected fauna features component of the Compartment Traverse, a minimum of four person hours per 200 hectares of net survey area must be spent continuously searching for the following features along the traverse identified in condition 8.7.1 above:
 1. Nests and roosts for those species listed in condition 5.13 of this licence;
 2. Dens of the following species: Yellow-bellied Glider, Squirrel Glider and Brush-tailed Phascogale;
 3. Flying-fox camps;
 4. Latrine and den sites of the Spotted-tailed Quoll;
 5. Distinctive scats (eg. Spotted-tailed Quoll, Koala);
 6. Predator scats (these must be collected for analysis);
 7. *Allocasuarina* or *Casuarina* spp. with chewed cones beneath;
 8. Yellow-bellied Glider and Squirrel Glider sap feed trees;
 9. Microchiropteran bat tree roosts;
 10. Microchiropteran bat subterranean roosts (caves, tunnels and disused mineshafts);
 11. Swift Parrot and Regent Honeyeater feed or nest trees;
 12. Wombat burrows (north of the Oxley Highway only);
 13. Permanent soaks and seepages (for further targeted survey work) in *Phyloria* spp. potential habitat;
 14. Areas of Suitable Habitat for Hastings River Mouse within compartments containing known habitat or modelled habitat for Hastings River Mouse; and
 15. Suitable habitat for the Broad-toothed Rat.
- ii. If habitats not previously identified in the desktop component are encountered while sampling along the pre-determined traverse, a proportion of the sampling time should be used to sample these habitats.

AMENDMENT 5
1 March 2013
Condition 8.7.2 b)
i. 7 modified

AMENDMENT 4
7 November 2011
Add subclause 14)
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 8.7.2 b)
i. 15. added

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- iii. Where threatened or protected fauna features are found, these features are to be appropriately flagged or marked in the field by the person conducting the survey. The location of the feature must also be marked on the Harvesting Plan map to assist the SFO in finding the flagged feature(s) during compartment mark up.

c) Data to Record:

- i. Name of Management Area, State Forest name, compartment number(s).
- ii. Date(s) of survey.
- iii. Surveyor(s) name.
- iv. The traverse route clearly marked on 1:25,000 forest type map.
- v. Length of compartment traverse.
- vi. Time spent conducting each component of the field methodology, ie. flora and fauna.
- vii. Threatened and protected flora taxa recorded and the number of individuals of each (indicate whether count or estimate).
- viii. Threatened and protected fauna features recorded.
- ix. AMG (to within a 100 metres accuracy) of threatened and protected flora records and threatened and protected fauna features recorded.
- x. Locality description (name and distance from nearest road, track, creek, etc) of threatened and protected flora records.
- xi. Locality of threatened and protected flora and threatened and protected fauna features clearly marked on a 1:25,000 forest type map.
- xii. List of additional surveys required.

8.8 Targeted Fauna Surveys

8.8.1 General

- a) The purpose of targeted fauna surveys is to search within compartments that contain known or potential habitat for those fauna species that require site-specific or species-specific conditions as listed in Table 13 below.
- b) The following methodologies must be used to survey for the relevant species within known habitat and potential habitat.

(Note: Any variations to the requirements set in this condition must be approved in writing by NPWS prior to surveys being conducted.)

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1 March 2013
Condition 8.8.1
Table 13 - title
modified

AMENDMENT 5
1 March 2013
Condition 8.8.1
Table 13 - species
modified

AMENDMENT 5
1 March 2013
Condition 8.8.1
Table 13 -
explanation added

Table 13: Species requiring pre-logging and pre-roading targeted surveys

Fauna group / Common name	Scientific name	Survey(s) required
Frogs		
Pouched Frog	<i>Assa darlingtoni</i>	Riparian frog and non-riparian frog
* Green and Golden Bell Frog	<i>Litoria aurea</i>	Targeted
* Yellow-spotted Tree Frog	<i>Litoria castanea</i>	Targeted
Peppered Frog	<i>Litoria piperata</i>	Riparian frog
Stuttering Frog	<i>Mixophyes balbus</i>	Riparian frog
Fleay's Frog	<i>Mixophyes fleayi</i>	Riparian frog
Giant Barred Frog	<i>Mixophyes iteratus</i>	Riparian frog
Mountain Frog	<i>Philoria kundagungan</i>	Riparian frog and non-riparian frog
Loveridge's Frog	<i>Philoria loveridgei</i>	Riparian frog and non-riparian frog
Sphagnum Frog	<i>Philoria sphagnicolus</i>	Riparian frog and non-riparian frog

Birds

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Albert's Lyrebird	<i>Menura alberti</i>	Other diurnal birds survey
Barking Owl	<i>Ninox connivens</i>	Nocturnal call playback and spotlight
Black-chinned Honeyeater (eastern sub-species)	<i>Melithreptus gularis gularis</i>	Other diurnal birds
* Black-throated Finch	<i>Poephila cincta</i>	Other diurnal birds
* Double-eyed Fig Parrot	<i>Cyclopsitta diophthalma coxeni</i>	Incidental
* Eastern Bristlebird	<i>Dasyornis brachypterus</i>	Targeted
Marbled Frogmouth	<i>Podargus ocellatus</i>	Nocturnal call playback and spotlight
Masked Owl	<i>Tyto novaehollandiae</i>	Nocturnal call playback and spotlight
Powerful Owl	<i>Ninox strenua</i>	Nocturnal call playback and spotlight
* Red Goshawk	<i>Erythroriorchis radiatus</i>	Incidental
Red-tailed Black-Cockatoo	<i>Calyptorhynchus banksii</i>	Incidental
* Regent Honeyeater	<i>Xanthomyza phrygia</i>	Other diurnal birds
Rufous Scrub-bird	<i>Atrichornis rufescens</i>	Targeted
Swift Parrot	<i>Lathamus discolor</i>	Other diurnal birds
Non-flying mammals		
* Black-striped Wallaby	<i>Macropus dorsalis</i>	Targeted and spotlight
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	Spotlight
* Eastern Quoll	<i>Dasyurus viverrinus</i>	Incidental
* Hastings River Mouse	<i>Pseudomys oralis</i>	Targeted
**Greater Glider	<i>Petauroides volans</i>	Spotlight
Squirrel Glider	<i>Petaurus norfolcensis</i>	Spotlight
Yellow-bellied Glider	<i>Petaurus australis</i>	Spotlight and nocturnal call playback
Flying mammals		
Golden-tipped Bat	<i>Kerivoula papuensis</i>	Targeted
Other microchiropteran bats		Subterranean roost

* Species listed in Schedule 1 of the TSC Act.

** Protected fauna species under NPW Act.

- c) For those fauna species requiring targeted fauna surveys, the following applies:
- i. If no previous reliable survey has been conducted, then pre-logging and pre-roading surveys in accordance with condition 8 of this licence are required for that species.
 - ii. If a previous reliable survey recorded the species, then pre-logging and pre-roading surveys in accordance with condition 8 of this licence within the compartment are required for that species.
 - iii. If a previous reliable survey did not record the species, surveys are not required for that species.
- d) A previous reliable survey is defined as a survey conducted in the compartment, or within two kilometres of the compartment, or within five kilometres in the case of the Golden-tipped Bat, in similar habitat to the compartment, in the previous ten years that was a survey equal to or better than the survey requirements set out in this condition with respect to survey methodology, sampling intensity, sample placement and distribution, survey season and weather conditions.
- e) Surveys for particular species are not required where SFNSW has chosen to apply condition 7 (b) above in relation to that species.

8.8.2 Data to Record:

For each targeted fauna survey method used the following information must be recorded:

- a) Name of Management Area, State Forest name, compartment number;
- b) Type of survey (including details of methodology used);

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Condition 8.8.1 d)
modified

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- c) Date(s) of survey;
- d) Surveyor(s) name;
- e) Survey location AMG (to within a 100 metres accuracy);
- f) Description of locality description (ie. name and distance from nearest road, track, creek, etc);
- g) Survey point or transect clearly marked on 1:25,000 forest type map;
- h) Survey start time and finish time;
- i) Threatened species being targeted;
- j) Threatened species recorded;
- k) Record observation type, eg. species heard, observed, scat record, track, hair, ultrasonic detection etc. Where bat ultrasonic detection, scat record, the reliability of the record is to be provided also. Name of person conducting bat ultrasonic analysis;
- l) For playback surveys: list species played;
- m) For trapping surveys: describe baits used in any traps;
- n) For riparian and non-riparian frog surveys: mark on map and record time spent at each site surveyed; and
- o) For each day or night of survey, on arriving at the survey location the following is to be recorded:
 - i. Temperature (degrees Celsius).
 - ii. Wind: 0 = calm; 1 = light, leaves rustle; 2 = moderate, moves branches; 3 = strong, impedes progress.
 - iii. Rain: 0 = rain during survey; 1 = evidence of rain in last 24 hours; 2 = no evidence of rain in last 24 hours.
 - iv. Night light: 1 = very dark, no moon + cloud; 2 = dark; quarter moon or moon with heavy cloud; 3 = detail seen, moon and clear sky; 4 = bright, half moon or more and no cloud.
 - v. Date and time these measurements were made.

8.8.3 Frog surveys

(Note: It would be most effective to undertake a local to regional scale frog survey at the most appropriate time of year and under the best weather conditions. Such a survey could cover breeding sites within or immediately adjacent to compartments scheduled to be logged over the following year.)

8.8.3 A Riparian frog survey

Riparian frog surveys must target the following species: *Mixophyes fleayi*, *Mixophyes iteratus*, *Mixophyes balbus*, *Philoria* species (in wet sclerophyll), *Litoria piperata* and *Assa darlingtoni* (in Dorrigo Management Area only). Riparian frog surveys must be conducted as follows:

- a) Surveys must be conducted for a minimum duration of one person hour for areas up to 200 hectares of net survey area, plus an additional 15 minutes per 50 hectares above 200 hectares. If more than one stream is surveyed, a minimum of ten minutes must be spent at each separate site.
- b) Three call playback sessions must be conducted per one hour search. After an initial two minute listening period, calls of target threatened frog species must be played for two minutes followed by a minimum five minutes listening period. When an observer is unsure of a species' identification, the call responses should be taped to allow verification by a suitably experienced frog expert.
- c) Surveys must be conducted twice, on different nights. Surveys must not commence earlier than 30 minutes prior to sunset and must conclude no later than sunrise.
- d) Surveys must not be conducted in cold, windy conditions. All attempts should be made to survey just after rain, during very light rain, or when rain is intermittent.
- e) For *Litoria piperata*, surveys should be repeated during the day with particular attention taken to search rocks and debris by the creeks and vegetation overhanging the creeks (search should be conducted so as to not result in damage to habitat).
- f) Survey season: 1 August to 31 March.

AMENDMENT 5
1 March 2013
Condition 8.8.3 A
modified

AMENDMENT 2
23 April 2003
Condition 8.8.3A.f)
replaced
Ref Appendix E

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(Note: Preferred survey seasons - *Litoria piperata*: summer. *Mixophyes fleayi* and *M. balbus*: September to March. *Mixophyes iteratus*: October to February. *Philoria kundagungan*: December to March. Other *Philoria* species: spring to early summer (best in spring), no later than December. *Assa darlingtoni*: summer.)

8.8.3 B Non-riparian frog search

Non-riparian frog surveys must target the following species: *Assa darlingtoni* (in Dorrigo Management Area only) and *Philoria* species. Non-riparian frog surveys must be conducted as follows:

- a) Where soaks, seepages or bogs occur, a minimum of 30 minutes, up to a maximum of two hours, must be spent surveying them within each 200 hectares of net survey area. The length of time spent surveying must be determined by the number and extent of soaks, seepages and bogs in the net survey area.
- b) For each additional 50 hectares of net survey area, an additional ten minutes must be added on to the minimum, and an addition 30 minutes must be added on to the maximum time referred to in part a).
- c) A minimum of ten minutes should be spent surveying each soak, seepage or bog.
- d) Call playback should be conducted at each soak, seepage or bog. Where call playback is conducted, it must consist of two minutes call playback followed by five minutes listening. When an observer is unsure of a species' identification, the call responses should be taped to allow verification by a suitably experienced frog expert.
- e) Surveys for *Philoria* species must be conducted either in the late afternoon or early morning.
- f) Surveys must not be conducted in cold, windy conditions. All attempts should be made to survey just after rain, during very light showers, or when showers are intermittent.
- g) Survey Season: 1 August to 31 March.

(Note: Preferred survey seasons - *Philoria kundagungan*: December to March. Other *Philoria* spp.: spring to early summer (best in spring), no later than December. *Assa darlingtoni*: summer.)

AMENDMENT 2
23 April 2003
Condition
8.8.3B.g) replaced
Ref Appendix E

8.8.3 C *Litoria aurea* and *Litoria castanea* survey

- a) Permanent wetlands or dams of greater than one hectare surface area must be surveyed for a minimum of one hour, both day and night. For large wetlands or dams, survey effort should be proportional to this effort. For smaller wetlands or dams a minimum of 30 minutes survey must be undertaken both day and night.
- b) Night searches must be conducted twice on two separate nights. Surveys must not commence earlier than 30 minutes prior to sunset and must conclude no later than sunrise.
- c) Call playback must be conducted at 50-100 metres intervals around wetlands / dams perimeter with call played for two minutes followed by a five minute listening period. When an observer is unsure of a species' identification, the call responses should be taped to allow verification by a suitably experienced frog expert.
- d) Surveys must not be conducted in cold, windy conditions. All attempts should be made to survey immediately prior to significant rainfall, just after rain, during very light rain, or when rain is intermittent.
- e) Survey Season for *Litoria aurea* is September to February. *Litoria castanea*: spring-summer.

(Note: Any variation to this survey technique must be approved in writing by NPWS prior to surveys commencing.)

8.8.4 Diurnal bird surveys

8.8.4 A Condition omitted (Amendment 5)

AMENDMENT 5
1 March 2013
Condition 8.8.4 A
omitted

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8.8.4 B Eastern Bristlebird

Surveys for the Eastern Bristlebird must be conducted as follows:

- a) A minimum 30 minutes duration must be spent searching for the species. These searches must be conducted in conjunction with call playback.
- b) Call playback must consist of calls being played for five minutes followed by a ten minute listening period. (*Note: Taped calls used in playback should be of local dialect.*)
- c) Care should be taken to avoid playing calls too frequently or too loud during the breeding season.
- d) Each potential site should be surveyed a number of times as birds may not be detected in the first survey.
- e) Surveys should be conducted in the early morning and late afternoon.
- f) Survey Season: Spring, during the breeding season when males call to defend territory.

8.8.4 C Rufous Scrub-bird

Surveys for Rufous Scrub-bird must be conducted as follows:

- a) The number of survey sites must be determined as follows:
 - i. four survey sites in potential habitat patches between one and 50 hectares in size;
 - ii. eight survey sites in potential habitat patches between 50 and 100 hectares in size;
 - iii. twelve survey sites in potential habitat patches between 100 and 150 hectares in size;
 - iv. sixteen survey sites in potential habitat patches between 150 and 200 hectares in size.
- b) At each survey site the following survey must be conducted:
 - i. the survey must be a minimum ten minutes duration;
 - ii. survey must consist of a five minute listening period at the beginning of the survey;
 - iii. SFNSW may choose to play the Rufous Scrub-bird call for a duration of up two minutes, after the five minute listen;
 - iv. surveys should be conducted in the early morning or late afternoon; and
 - v. two separate surveys must be undertaken on separate days at each site between August and February (inclusive).
- c) The location of survey sites must maximise coverage of the potential habitat area. The surveyor(s) should conduct call playback sessions in different areas of habitat, where appropriate.
- d) Survey Season: August to February (inclusive).

8.8.4 D Other Diurnal Birds

Surveys for other threatened diurnal birds requiring species-specific or site-specific conditions must be conducted as follows:

- a) Surveys must be conducted for a minimum of one person hour duration for areas up to 200 hectares of net survey area, plus an additional 15 minutes per 50 hectares above 200 hectares.
- b) Surveys must be conducted in the early morning.
- c) The following species must be searched for: Albert's Lyrebird, Black-throated Finch, Black-chinned Honeyeater (eastern sub-species), Regent Honeyeater and Swift Parrot.
- d) Surveys should focus on the following features of these species:
 - i. Albert's Lyrebird: Particular attention must be given to the identification of nests. Nest locations are characterised by areas where the leaf litter has been intensively raked over.
Survey Season: anytime of the year.

AMENDMENT 5
1 March 2013
Condition 8.8.4 D
c) modified and d)
v. added

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- ii. Black-throated Finch: In dry seasons or during droughts, extra effort should be employed surveying around permanent water holes. Survey Season: anytime of the year.
- iii. Regent Honeyeater: Surveys must be conducted where recent records (ie. within the previous five years) exist within five kilometres of the compartment boundary. Surveys must focus on any permanent water bodies, dams, flowering eucalypts. Survey Season: winter to mid summer.
- iv. Swift Parrot: Surveys should concentrate on searching winter flowering eucalypts and other species. Survey season: March to October.
- v. Black-chinned Honeyeater (eastern sub-species): Survey should focus on upper levels of eucalypt canopy in drier forest types in proximity to streams. Call must be listened for. Survey Season: anytime of the year.

AMENDMENT 5
1 March 2013
Condition 8.8.5
modified

8.8.5 Nocturnal Call Playback

Nocturnal call playback must target the following species: Barking Owl, Masked Owl, Powerful Owl, Marbled Frogmouth and Yellow-bellied Glider. Nocturnal call playback surveys must be conducted as follows:

- a) Call playbacks must be conducted at two sites for every 200 hectare of net survey area, plus an additional site per 100 hectares above 200 hectares.
- b) Playback sites must be more than one kilometre apart. The location of the playback sites should optimise response.
- c) At each call playback site, an initial listening period of ten minutes should be undertaken, then each target species call must be played for five minutes followed by at least a two minute listening period. After the last call at least ten minutes must be spent listening. Calls must be played from a good quality portable tape cassette or CD player and amplified through a nine volt megaphone, or equivalent or better. The Powerful Owl call should be played first.
- d) The playback session must be conducted twice, on different nights. Where a species is recorded at a site on the first night of survey, it is not a requirement of this condition that the call of this species be played at that site on the second night of survey.
- e) Windy and rainy conditions are to be avoided.
- f) Where one transect of two kilometres length is established for spotlighting, call playback can be conducted at the beginning and end of each two kilometres transect. Where two transects of one kilometre length are implemented for spotlighting, call playback can be conducted at the beginning or end of each one kilometre transect.
- g) Survey season: Anytime of the year, preferably spring, summer and autumn.

8.8.6 Spotlight Survey

- a) Spotlight surveys must target the following species: Brush-tailed Phascogale, Black-striped Wallaby, Squirrel Glider, Yellow-bellied Glider, Greater Glider, Marbled Frogmouth, Powerful Owl, Barking Owl and Masked Owl.
- b) Spotlight surveys must be conducted as follows:
 - i. For areas up to 200 hectares of net logging area, a spotlight transect totalling two kilometres distance, plus an additional 500 metres for each 50 hectares of net logging area above 200 hectares, must be conducted.
 - ii. Transects must be a minimum 500 metres in length, and should be one kilometre in length.
 - iii. This / these transects must be spotlighted twice on two separate nights. On one night, the transect(s) must be spotlighted while walking. On the other night, the spotlighting transect(s) may be conducted from a vehicle. Preferably both transects should be done on foot.
 - iv. In areas of Brush-tailed Phascogale known habitat or potential habitat, both nights' surveys must be conducted while walking.

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Condition 8.8.6 b)
omitted

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- v. During vehicle spotlighting, vehicle speed must not exceed five kilometres/hour. Vehicle spotlight must be a minimum one hour duration per 200 hectares.
- vi. During walking spotlighting, observers must walk at approximately one kilometre/hour. Walk spotlight must be a minimum one hour duration per 200 hectares.
- vii. Survey must involve two observers using 100 watt spotlights for vehicle spotlighting and 50 watt spotlights for walking spotlighting.
- viii. Windy, cold and rainy conditions should be avoided.
- ix. Survey Season: Anytime of the year, preferably spring, summer and autumn.

(Note: Walking spotlight survey transects can be established along roads. If potential habitat exists away from roads, SFNSW can opt to establish an off-road survey. Spotlight surveys can be conducted prior to call playback.)

AMENDMENT 5
1 March 2013
Condition 8.8.7
omitted

8.8.7 Condition omitted (Amendment 5)

8.8.8 Black-striped Wallaby

Black-striped Wallaby surveys must be conducted as follows:

- a) Within areas of potential habitat for the Black-striped Wallaby two distinct habitat components should be able to be identified:
 - i. Day time sheltering habitat: rainforest and wet sclerophyll forest with a dense shrub understorey of either lantana or rainforest species.
 - ii. Night time feeding habitat: areas of open forest with a grassy understorey or pasture usually within 200 metres of day time sheltering habitat.
- b) Surveys to determine the presence of Black-striped Wallaby must consist of a day time survey and a night time survey.
- c) Day time Survey: Surveys of day time sheltering habitat must consist of a slow walk through day time sheltering habitat to observe or “flush” individuals, to search for Black-striped Wallaby scats, and to identify where well-used runways and feeding areas intersect. A minimum of four person hours per single compartment must be spent conducting the day time survey surveys.
- d) Night time Survey: Surveys of night time feeding habitat must be conducted at dusk in areas where runways intersect with potential feeding areas. The surveyor(s) must sit quietly in these areas and attempt to observe the species. A minimum of four person hours per compartment must be spent conducting the night time surveys.
- e) Survey Season: Anytime of the year.

8.8.9 Hastings River Mouse surveys

Surveys for Hastings River Mouse must be conducted across the net survey area of all compartments that contain known habitat or modelled habitat for Hastings River Mouse as follows:

8.8.9 A Habitat suitability surveys

Surveys to determine habitat suitability must be conducted as follows:

- a) Within compartments containing known habitat or modelled habitat for Hastings River Mouse, classify and map vegetation cover in the survey area using aerial photographs, other remote sensing technology or existing mapped information such as forest type maps. The vegetation should be classified into broad vegetation categories such as: rainforest, wet sclerophyll, dry sclerophyll, woodland and grassland.
- b) Each broad vegetation category must be inspected in the field and the following types of vegetation must be mapped at a scale of 1:25,000 or better:
 - i. wet or dry sclerophyll forests with a grass, sedge, rush, heath or fern understorey;
 - ii. woodland with a grass, sedge, rush, heath or fern understorey; and

AMENDMENT 4
7 November 2011
Change first
sentence
Ref Appendix E

AMENDMENT 4
7 November 2011
Omit, insert, and
modify clauses
Ref Appendix E

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- iii. wet or dry sclerophyll forest or woodland with dispersed patches of grass, sedge, rush, heath or fern.
- c) Topographic maps, aerial photographs, other remote sensing technology and field survey must be used to identify and map any areas with outcropping rock cover occurring in conjunction with vegetation types in condition 8.8.9A (b) above within or within one kilometre beyond the boundary of the compartment.
- d) For every ten hectares of vegetation type mapped in condition 8.8.9A (b) above, one 100 metres microhabitat transect must be established. Each transect must be located to sample a representative area within each ten hectare patch of vegetation type. Transects must be located to sample within 100 metres of outcropping rock cover referred to in condition 8.8.9A (c) above where present. Transects should be orientated parallel to drainage lines or transects should sample areas of high total vegetation cover of sedges, rushes, grass, heath and fern. Where mapped vegetation type is patchy in distribution each patch greater than five hectares should be sampled.
- e) A microhabitat transect referred to in condition 8.8.9A (d) above must comprise assessments of:
 - i. Sedge, rush, grass, heath and fern cover: at ten metre intervals along the 100 metres transect (giving 11 samples) record in a circular plot measuring three metres in radius at each sample point the percentage cover of sedge, rush, grass, heath and fern within the plot. Average the percentage across all 11 points along the transect.
 - ii. Vegetation Cover: within the 11 circular plots referred to in condition 8.8.9A (e) i. above, record the number of times vegetation contacts a one centimetre diameter pole between ten centimetres and 75 centimetres above ground oriented vertical at one point within the plot. Average the number of contacts across all 11 points along the transect.
 - iii. Heath Cover: record the presence of heath plants in the genera *Leucopogon*, *Epacris*, *Oxylobium*, *Pulleanaea*, *Daviesia*, *Dillwynia*, *Hakea*, *Leptospermum*, *Baekia*, and *Callistemon*, along the transect.
 - iv. Shelter Index (SI): within 20 metres either side of the entire length of the 100 m transect, conduct a random meander counting the following:
 - A. the number of natural burrows (individual holes > four centimetres diameter and 30 centimetres depth) to a maximum of 40;
 - B. the number of large trees with basal cavities (holes > four centimetres diameter and 30 centimetres depth);
 - C. the number of rock cavities (> four centimetres entrance diameter and >30 centimetres depth) to a maximum of 40; and
 - D. the number of logs >30 centimetres diameter.
 - v. Sum the number of holes, tree cavities, rock cavities and logs and divide by four to give the shelter index.
 - vi. Record whether there is any outcropping rock cover present which is more than 100 metres length and is within 500 metres of the transect.
- f) Using the model detailed in Schedule 10 the suitability of habitat must be determined as either:
 - i. unsuitable, moderate or high suitability using model 1, OR
 - ii. unsuitable, moderate or high suitability using model 2.
- g) Habitat assessments should not be undertaken in areas burnt in the past two years. Where it is unavoidable to undertake habitat assessment of a site that has been burnt within the past two years the scores for grass, sedge and rush cover and vegetation cover must be increased by one category (eg low to moderate).
- h) Where habitat is assessed as moderate or high suitability the Targeted Surveys in condition 8.8.9B below must be implemented within such habitat.

APPENDIX B – LOWER NORTH EAST

- i) Where Forests NSW choose to undertake a rapid habitat assessment approach referred to in the note following this clause, the assessment must be documented. The Hastings River Mouse Rapid Habitat Assessment data sheet format in Schedule 10 provides an example of the information that is required to be recorded. The data recording requirements may be varied subject to the written approval of OEH.

(Notes: Once experience has been gained in the application of this procedure it is anticipated that it will be possible to identify and map areas of potential medium to high quality HRM Habitat by visual inspection. The use of this rapid assessment approach must be subject to training and regular calibration.

The following references should be consulted with regard to the identification of Hastings River Mouse habitat and the application of the microhabitat model:

A.P. Smith and D.G. Quin (1997) Microhabitat Requirements of the Hastings River Mouse (Pseudomys oralis) (Rodentia: Muridae). Unpublished report to the Hastings River Mouse Recovery Team.

NPWS (1993) Interim Hastings River Mouse Habitat Identification Guide. Report prepared by the Hastings River Mouse Recovery Team and NSW NPWS.

S. Wall (1998) A photographic description of the differing habitat classes, and habitat components of the Hastings River Mouse (Pseudomys oralis). Unpublished report to the New South Wales National Parks and Wildlife Service.

Tweedie, T.D. and A. York (1993) Survey Guidelines for the Hastings River Mouse (Pseudomys oralis). Forestry Commission of NSW Technical Research Paper no. 62).

8.8.9 B Targeted surveys

Surveys to determine the presence of Hastings River Mouse must be conducted as follows:

- a) The minimum specifications for trapping are as follows:
- i. The trap effort is to be at a rate of 1 size A Elliott trap over four nights for each hectare identified as having Suitable Habitat for Hastings River Mouse (either as the result of habitat suitability surveys under 8.8.9A or otherwise such as during compartment traverse or incidentally recorded).
 - i. The minimum number of traps will be 50 for up to 50 hectares, with 25 additional traps for each 25 hectares increment above 50 hectares, as follows:
 - 10-50 hectares 50 traps
 - 50-75 hectares 75 traps
 - 75-100 hectares 100 traps
 - > 100 hectares add additional 25 traps for each 25 ha increment
 - ii. For each 200 trap nights two transects should be established. Twenty five traps should be placed along each transect. Each trap should be placed at approximately ten metre intervals in sites where suitable micro-habitat occurs.
 - iii. Transects should be placed in suitable habitat to maximise capture.
- b) Survey Season: Anytime of the year, preferably avoiding cold, wet periods.

(Note: The trapping configuration may be varied to allow for local topographic conditions however, the trap effort should remain the same.)

[Schedule 10 has Hastings River Mouse Rapid Habitat Assessment data sheet]

AMENDMENT 4
7 November 2011
Replace provisions
Ref Appendix E

AMENDMENT 5
1 March 2013
Condition 8.8.10 A
omitted

8.8.10 Microchiropteran bat surveys

8.8.10 A Condition omitted (Amendment 5)

AMENDMENT 5
1 March 2013
Condition 8.8.10 B
modified

8.8.10 B Golden-tipped Bat *Kerivoula papuensis*

Surveys for *Kerivoula papuensis* must be conducted as follows:

- a) A minimum of two sites per 200 hectares of net logging area, plus an additional site per 100 hectares above 200 hectares, must be harp trapped. At each site, harp traps must be set for a minimum period of two consecutive nights.
- b) Harp traps must be set well before dusk.
- c) Harp traps must be set across creeks, pools and other appropriate flyways close to streams to increase the chance of trap success. Supplementary screening should be used where necessary.
- d) Windy, cold and rainy weather conditions must be avoided.
- e) Survey Season: 1 August to 31 March.

(Note: Preferred survey season: Spring and Summer.)

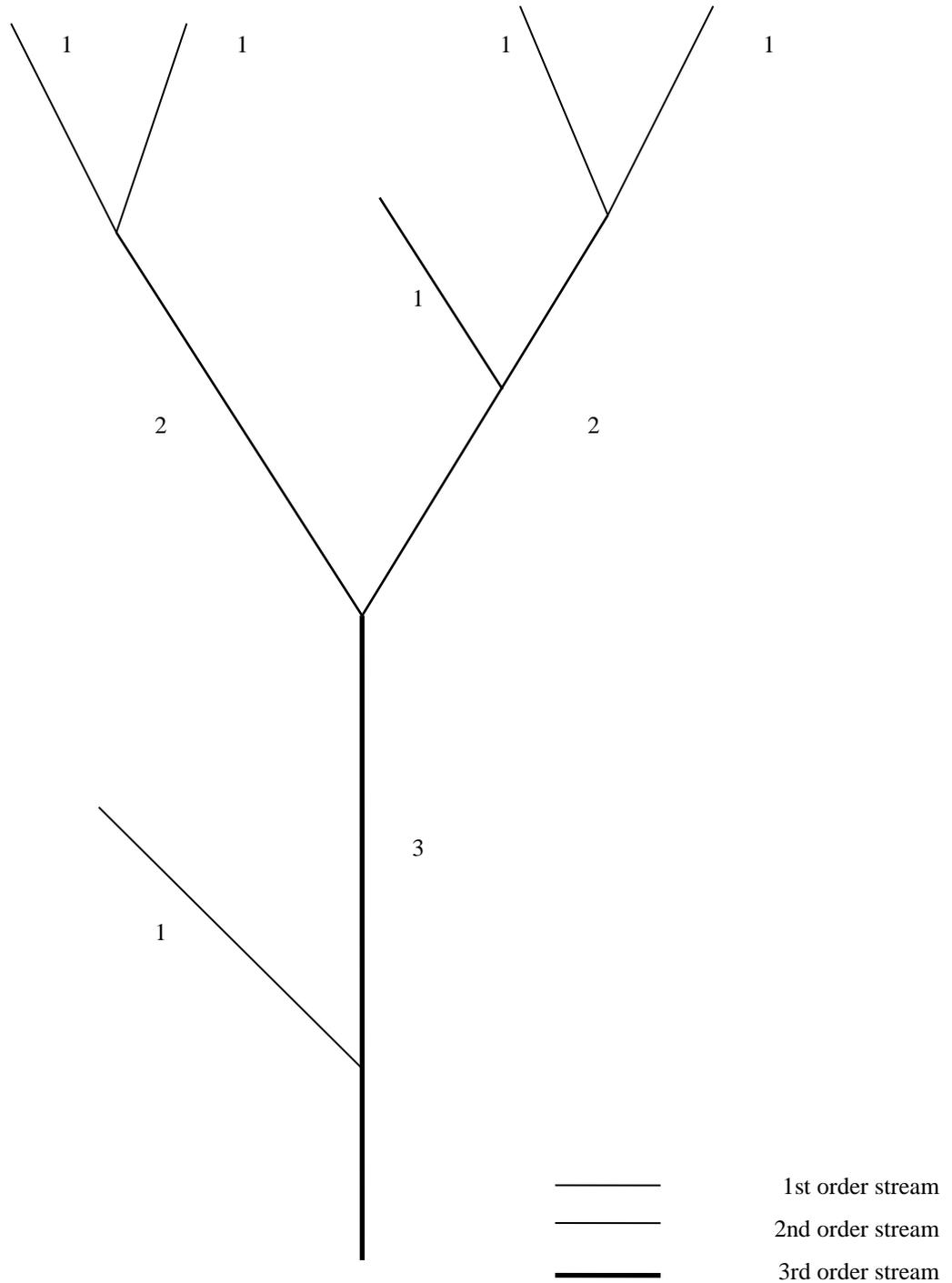
AMENDMENT 2
23 April 2003
Condition
8.8.10Bf) replaced
Ref Appendix E

SCHEDULE 1: Determination of stream order

Stream order must be determined according to the methodology outlined below.

1. A first order stream is defined as that part of a drainage system between its point of origin and the first junction with another stream. A second order stream commences at the junction of two first order streams. A third order stream commences at the junction of two second order streams. A fourth order stream commences at the junction of two third order streams. A schematic diagram of stream order is provided in Figure 1 below.
2. Downstream from the junction of two streams of different stream order, the higher stream order is maintained.
3. The determination of stream order must commence from the catchment boundary, even if that is outside the compartment.
4. Stream order must be derived from the drainage network provided on the relevant topographic map(s) for the compartment, from a 1:25,000 map sheet produced by the Land Information Centre (formerly the Central Mapping Authority). Where a 1:25,000 map sheet is not available for the compartment, then the best available scale map sheet produced by the Land Information Centre must be used.

Figure S1.1: Schematic diagram of stream order



(after Strahler 1964)

SCHEDULE 2: Threatened flora potential habitat and Metapopulation Unit descriptions

Schedule 2 Part A: Threatened Flora Potential Habitat Description

Species

Acacia acrionastes

Distribution: Ashford area, North Western Slopes.

Likely habitat: Dry Sclerophyll Forest.

Additional known habitat details: Recorded on red-brown shallow loamy clay on acid volcanics.

Acacia bynoeana

Distribution: Morisset to Mittagong. Eg. Hazelbrook, Bell, Wheelbarrow Ridge, Marramarra NP, Western Sydney, Lower Portland, West of French's Forest, Berrima, Mittagong, Wyee.

Likely habitat: Heath, dry sclerophyll forest & woodland.

Additional known habitat details: Has been recorded with *Kunzea ambigua*, *K. capitata*, *Acacia occicedrus*, *A. myrtifolia*, *Corymbia gummifera*, *E. haemostoma*, *E. parramattensis*, *E. sclerophylla*, *Leptospermum flavescens*, *Angophora bakeri*, *Banksia serratifolia*, *Angophora hispida*. Recorded on laterite flats and sandy soils.

Acacia courtii

Distribution: Kew – Laurieton district. Eg. Middle Brother SF, Dooragon NP and South Brother Mountain.

Likely habitat: Dry sclerophyll forest, on rocky, steeper slopes, from ridge top to lower slope.

Additional known habitat details: On rocky slopes on shallow soils over microgranite, between 40-300 metres alt. Recorded with *Eucalyptus pilularis*, *E. carnea*, *E. agglomerata*, *E. biturbinata*, *E. siderophloia*, *Acacia penninervis*, *A. implexa*, *Kunzea* sp. A. Flowers spring-early summer.

Acacia flocktoniae

Distribution: Blue Mountains, Little Hartley to Yerranderie. Eg. Megalong Valley, Mount Victoria, Scotts Main Range.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Sandstone soils, *Acacia stricta*, *Podolobium ilicifolium*, 500-1000 metres altitude, flowers mostly in January-September.

Acacia macnuttiana

Distribution: Northern Tablelands. E.g. Boonoo Boonoo Falls, Torrington.

Likely habitat: Dry sclerophyll forest and heath.

Additional known habitat details: Usually on granite, often near streams.

Acacia pubescens

Distribution: Mountain Lagoon (Blue Mountains) to Canterbury (inner western Sydney).

Likely habitat: Open woodland and forest.

Additional known habitat details: Occurs on Tertiary Alluvium, Holocene Alluvium and Wiannamatta Shale, gravelly soils with ironstone. Occasionally on transition between sandstone and shale. 0-650 metres altitude.

Acacia pubifolia

Distribution: Emmaville, Torrington.

Likely habitat: Dry sclerophyll forest, woodland.

Additional known habitat details: On granite.

Acacia pycnostachya

Distribution: Bolivia Hill, Ashford, Bluff Rock (Tenterfield).

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Granite outcrops.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Acacia ruppii

Distribution: Restricted to the Coaldale area near Grafton. Eg. Fortis Ck NP, Banyabba SF, Copmanhurst.

Likely habitat: Dry sclerophyll forest & shrubland.

Additional known habitat details: Sandy soils over sandstone. Recorded from & on disturbed roadside sites between 50-150 metres alt. Often in Angophora/Bloodwood/Scribbly Gum forest. Flowers July-Sept.

Acalypha eremorum

Distribution: Limpinwood NR, near Lismore, Mooball SF, Nullum.

Likely habitat: Dry rainforest, margins of sub-tropical rainforest.

Additional known habitat details:

Acronychia littoralis

Distribution: Tweed to Port Macquarie, Richmond-Tweed valleys, Red Rock, Bongil Bongil NP, Sawtell, Smokey Cape, Crowdy Bay.

Likely habitat: Littoral -sublittoral rainforest.

Additional known habitat details: Sometimes occurs within sclerophyll forest with a littoral rainforest understorey. Occurs predominantly on marine-aeolian sands, sometimes estuarine sediments.

Survey Season: May, June, July August. Need fruit to confirm species from other *Acronychia* spp.

Aldrovanda vesiculosa

Distribution: Bundjalung NP Evans Head.

Likely habitat: Shallow freshwater lagoons.

Additional known habitat details:

Allocasuarina defungens

Distribution: North from Nabiac to Coffs Harbour area. E.g. Limeburners Ck NR, Yuraygir NP, Waihou FR, Conglomerate SF, Bundjalung NP.

Likely habitat: Moist sand heath (between wet and dry heath) and clay heath.

Additional known habitat details: On sandy or silty sand soils. Associated species include *Banksia oblongifolia*, *Hibbertia vestita*, *Epacris pulchella*, *Xanthorrhoea resinosa*.

Allocasuarina simulans

Distribution: Nabiac to Forster.

Likely habitat: Heath.

Additional known habitat details: On sands.

Almaleea cambagei

Distribution: Ashford, Torrington, Glencoe (SW Glen Innes)

High probability habitat: Wet heath, swamp

Additional known habitat details: On granite, over 1000 metres altitude

Amorphospermum whitei

see Metapopulation Unit Descriptions

Amyema scandens

Distribution: Rocky Creek Dam (Nightcap Range), near Lismore.

Likely habitat: Sub-tropical rainforest.

Additional known habitat details: Host is Rosewood.

Angiopteris evecta

Distribution: North of Tweed District, Cudgera Creek (Burringbar-Pottsville).

Likely habitat: Subtropical rainforest.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Additional known habitat details: Located on creek tributary, humus enriched clay loam soil developed on alluvium and colluvium. Occurs in association with *Alphitonia excelsa*, *Quintinia verdonii*, *Guoia semiglauca*.

Angophora exul

Distribution: Northern Tablelands. Eg. Gibraltar Rock, west of Tenterfield.

Likely habitat: Open scree on a ridge of acid volcanic outcrops.

Additional known habitat details: Only known from one population.

Angophora inopina

Distribution: Wallarah catchment between Charmhaven and Wyee.

Likely habitat: In open dry sclerophyll woodland on deep white sandy soils over sandstone.

Additional known habitat details: In Eucalyptus haemastoma and Corymbia gummifera woodland with a dense shrub understorey. Soils often with some gravelly laterite.

Angophora robur

Distribution: From north-west of Coffs Harbour to north-west of Grafton. Eg. Fortis Ck NP, Sherwood NR, Waihou NR, Newfoundland SF.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Low site quality dry sclerophyll forest. Restricted to sandy soils on sandstone. Associated with other rough-barked apples, various stringybarks and bloodwoods. Restricted but locally frequent in the Glenreagh-Coaldale sandstone belt.

Apatophyllum constablei

Distribution: Glen Davis, Wollemi NP, Gaspers Mountain, Coorongooba Creek.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: At the base of cliffs and on slopes in association with *Eucalyptus piperita*, *E. punctata*, *E. sparsifolia*, *Callitris glaucophylla*, *Banksia serrata*, *Acacia linifolia*. On Triassic Narrabeen Sandstone and Triassic talus debris, with sandy and skeletal soils.

Arthraxon hispidus

Distribution: Recorded from Bellinger Valley, possible Bonville area and historical records from Glen Innes region and Alstonville.

Likely habitat: In rainforest, eucalypt forest & woodland.

Additional known habitat details: On edge of disturbed wet forest, poorly drained areas. Flowers late summer - autumn.

Arthropteris palisotii

Distribution: Richmond River, north from Comboyne Plateau. Known only from historical records.

Likely habitat: tree trunks in rainforest.

Additional known habitat details:

Asperula asthenes

Distribution: Timbertop (Glenreagh), Nulla - Five day (Kempsey), Mt Boss (Wauchope), Forster, Gloucester, Buladelah, Girvan, Coolongolook.

Likely habitat: Damp sites, riparian forest.

Additional known habitat details: Along riverbanks, in gravel on edge of river.

Asterolasia elegans

Distribution: Maroota, Laughtondale Gully Road, Marramarra NP, Dyrabbin, Morans Rock.

Likely habitat: Open forest, wet sclerophyll forest.

Additional known habitat details: In association with *Eucalyptus piperita*, *Allocasuarina torulosa*, *Ceratopetalum gummiferum*, *Elaeocarpus reticularis*, *Backhousia myrtifolia*, *Callicoma serratifolia*, *Astrotricha latifolia*. Occurs on Hawkesbury Sandstone.

Austromyrtus fragrantissima

Distribution: Woodburn on the lower Richmond to the Currumbin Valley, eg. Lismore, Bangalow, The Channon, Ruthven, Boat Harbour NR.

Likely habitat: Known from lowland dry and subtropical rainforest.

Additional known habitat details: On basalt-derived soils or basaltic alluvium.

***Baeckea* sp. *Pyramids* (syn. *Babingtonia granitica*)**

Distribution: Giraween NP, north east of Lyra, north west of Ballandean.

Likely habitat:

Additional known habitat details: Rocky outcrops, granite belt, in shallow peaty soil associated with crevices in extensive granite outcrops.

Baloghia marmorata

Distribution: Near Lismore, Rous, Meerschaum Vale

High probability habitat: Lowland subtropical rainforest.

Additional known habitat details: On kraznozem basaltic soils.

Bertya ingramii

Distribution: East south east of Armidale. Eg. Dangar Falls area, Gara River (Armidale), Mihi Falls

Likely habitat: Shrubland and woodland.

Additional known habitat details: Edges and tops of cliffs. Flowers spring-summer.

Bertya* sp. *A Cobar-Coolabah

Distribution: Kangaroo River SF, Gibraltar SF.

Likely habitat: Open dry forest, woodland.

Additional known habitat details: Shallow soils on ridges, rocky outcrops. Flowers July-August.

Blumea lacera

Distribution: North from Richmond Range.

Likely habitat:

Additional known habitat details: Wastelands, roadsides,

Boronia granitica

Model available

Distribution: Northern Tablelands. E.g. Kings Plains NP, near Torrington

Likely habitat: In fissures of granite outcrops, and in forests on granite scree and shallow soils.

Additional known habitat details: Associated species in NSW include *Acacia fimbriata*, *N. neriifolia*, *A. triptera*, *Angophora floribunda*, *Callitris endlicheri*, *Correa reflexa*, *Eucalyptus prava*, *Hibbertia obtusifolia*, *Jacksonia*, *Leucopogon melaleuroides*, *L. muticus*, *L. neo-anglicus*, *Melichrus urceolatus*, *Olax stricta*, *Phebalium rotundifolium*, *Pranthera* and *Xanthorrhoea*.

Boronia umbellata

Distribution: Coffs Harbour district. Eg. Bagawa, Conglomerate, Nana Creek, Wild Cattle Creek & Lower Bucca SFs, Madmans Ck FR.

Likely habitat: Wet sclerophyll forest, on high quartz metasediments.

Additional known habitat details: In tall open forest, adjacent to creek lines and sheltered positions. Recorded with *Eucalyptus acmenoides*, *E. siderophloia*, *E. microcorys*, *E. propinqua*, *E. pyrocarpa*, *Syncarpia glomulifera*, *Corymbia intermedia*. Flowers August to November.

Bosistoa selwynii

Model available

Distribution: North of the Richmond River. E.g. Whian Whian SF.

Likely habitat: Lowland subtropical rainforest and wet sclerophyll forest.

Additional known habitat details: On basaltic soil. Prefers alluvial flats, particularly along creek banks.

Bosistoa transversa

Model available

Distribution: North from Mullumbimby. E.g. Middle Pocket, Couchy Creek, Bilambil.

Likely habitat: Lowland subtropical rainforest.

Additional known habitat details: Up to 150 metres altitude.

Bothriochloa biloba

Distribution: From the Darling Downs south along the western slopes, northern tablelands & the Hunter Valley. Eg. Ewingar SF.

Likely habitat: In grassy woodland.

Additional known habitat details: On poorer soils. Recorded from euchrozem soil on cleared roadsides; brown clay & black soil. Flowers summer.

Bulbophyllum globuliforme

Distribution: MacPherson Range and north to Gladstone. Eg. Grady's Creek (Border Ranges).

Likely habitat: Rainforest.

Additional known habitat details: Epiphyte on Hoop Pine, 300-600 metres altitude.

Cadellia pentastylis

Distribution: Terry Hie Hie, Turkey Ridge, Deriah SF, Eulah Creek, Narrabri, Kelvin, Gravesend, Bininguy, Gunnedah, Warialda.

Likely habitat:

Additional known habitat details: usually the dominant species, other associated species include: *Casuarina glaucophylla*, *Eucalyptus albens*, *E. chloroclada*, *E. viridis*, *E. pillagensis*, *E. beyeri*, *Notelaea microcarpa*, *Beyeria viscosa*, *Alstonia constricta*, *Stipa* and *Aristida* species, thickets, undulating terrain, variety of soil types - often lithic sandstone, conglomerate or mudstone, usually between 300-450 metres altitude.

Caesia parviflora var. minor

Distribution: South from Corindi, northern tablelands to Bingara.

Likely habitat: Heath, woodland, dry sclerophyll forest.

Additional known habitat details: Sandstone substrates.

Survey Season: Spring - summer. Live material needed for positive identification.

Callitris baileyi

Distribution: Far Northern NSW to Qld. Eg. Acacia Creek, Koreelah Creek (Urbenville), Sandilands (Tabulam, older records), inland from Queensland border on north coast.

Likely habitat: Dry Sclerophyll Forest.

Additional known habitat details: Drier ranges, grassy forest, often rocky areas near creeks.

Callitris oblonga

Model available

Distribution: Northern Tablelands.

Likely habitat: Sandy soils.

Additional known habitat details: Usually grows in sand near banks of streams.

Calophanoides hygrophiloides

Model available

Distribution: Brunswick Heads and Hortons Creek, North Coast.

Likely habitat: Rainforest or adjacent wet sclerophyll forest.

Additional known habitat details:

Choricarpia subargentea

Distribution: Mt Chinchogan (Mullumbimby).

Likely habitat: Dry rainforest.

Additional known habitat details: Dense thickets, often regrowth.

Clematis fawcettii

Model available

Distribution: North of the Richmond River.

Likely habitat: Drier rainforest.

Additional known habitat details: Usually found near streams.

Survey season: Flowers September - November.

Corchorus cunninghamii

Distribution: North of Lismore. Chiefly collected in the Lismore district last century. Eg. Toonumbar SF, Bungabee SF.

Likely habitat: Margins of rainforest & wet sclerophyll forest.

Additional known habitat details: Generally grows in narrow ecotone between closed forest & open forest. Favours hill crests or upper slopes, shallow, well-drained soils & south to south-east aspects. Also known from wet sclerophyll forest dominated by Ironbark, Brush Box & Grey Gum, with mesophytic associate species.

Corokia whiteana

See Metapopulation Unit descriptions

Corynocarpus rupestris ssp. rupestris

Distribution: Glenugie Peak, Glenugie SF.

Likely habitat: Dry rainforest.

Additional known habitat details: Dry stony slopes.

Cryptocarya foetida

Model available

Distribution: From near Iluka north to Fraser Island.

Likely habitat: Littoral rainforest on old sand dunes, and subtropical rainforest over slate, and occasionally on basalt.

Additional known habitat details: Associated species include: *Acmena hemilampra*, *Acronychia imperforata*, *Cryptocarya triplinervis*, *Cupaniopsis anacardioides*, *Flindersia bennettiana*, *Lophostemon confertus*, *Syzygium luehmanii*.

Cryptostylis hunteriana

Distribution: South from the Gibraltar Range, chiefly in coastal districts. Eg. Port Stephens district, also extends on to tablelands, eg. Riamukka SF, Gibraltar Range NP.

Likely habitat: Swamp-heath and drier forest.

Additional known habitat details: On sandy soils in small, localised colonies most often on the flat plains close to the coast. Also known from some mountainous areas growing in moist depressions and swampy habitats. Recorded on granite & sandstone.

Survey Season: December – February inclusive, when flowering.

Cymbidium canaliculatum

Distribution: North from the Hunter Valley.

Likely habitat: Drier forests and woodlands of the tablelands and western slopes.

Additional known habitat details: Grows on stout hollow limbs or tree trunks.

Cynanchum elegans

Distribution: Illawarra district to far northern NSW. Gloucester district, Newcastle, Illawarra area & inland to Mt Dangar. Scattered sites along the central coast & north coast areas extending inland to the Hunter Valley. Eg. Delicate Nobby, Fairfield, Camels Hump NR, Woko NP, Boundary Creek SF, Yabbrra SF, Coneac SF, Booti Booti SRA, Tomalla SF.

Likely habitat: Dry & subtropical rainforest & sclerophyll forest, mainly ecotonal occurrence.

Additional known habitat details: On clays or clay loams & in scrub or woodland on steep basalt scree slopes. Recorded in Spotted Gum forest 0-200 metres alt. Also recorded in littoral communities on coastal sands, dry rainforest / sclerophyll ecotones on metasediments.

Cyperus aquatilis

Distribution: North from Evans Head. Eg. Royal Camp SF, Busby's Flat (Rappville), Bundjalung NP.

Likely habitat: Open ephemeral wet sites.

Additional known habitat details:

Survey Season: Spring-summer; annual herb.

Darwinia biflora

Distribution: Maroota to Macquarie Park, Ku-ring-gai NP, Turramurra, St Ives, Mt Colah, Hornsby, Blue Mountains, Royal NP.

Likely habitat: Woodland, Dry Sclerophyll Forest, Scrub-Heath.

Additional known habitat details: Occurs on edges of weathered shale-capped ridges, intergrading with Hawkesbury Sandstone. In association with *Eucalyptus haemostoma*, *Corymbia gummifera*, *E. sclerophylla*, *E. capetillata*, *Angophora hispida*, *Banksia ericifolia*, *Hakea teretifolia*, *Persoonia pinifolia*, *Kunzea capitata*, *Isopogon anethifolius*.

Davidsonia pruriens* var. *jerseyana

Model available

Distribution: Brunswick and Tweed rivers. Eg. Chillingham, Tumbulgum, Murwillumbah, Mooball, Ocean Shores

Likely habitat: Subtropical rainforest at low altitudes.

Additional known habitat details: Usually found on red and yellow podsolc soils of poor structure over Silurian greywacke, slate, phyllite or quartzite.

***Davidsonia* sp. Mullumbimby Currumbin Creek (syn. *D.* sp. A)**

Distribution: Burringbar, Huonbrook, Wanganui Gorge, The Channon, Tintenbar, Broken Head, between Nimbin and Tweed.

Likely habitat: Subtropical rainforest, edge of wet sclerophyll.

Additional known habitat details: Often disturbed.

Dendrocnide moroides

Distribution: North of the Clarence River, Chillingham, Murwillumbah (Mount Nullum), Bogangar, Mooball SF. Historic record from Drake.

High probability habitat: Subtropical, dry and littoral rainforest, in gaps and edges, ecotonal wet eucalypt forest.

Additional known habitat details: Recorded in association with *Acmena ingens*, *Diospyros pentamera*, *Dysoxylum mollissimum*, *Araucaria cunninghamii*, *Flindersia australis*, *Lophostemon confertus*, *Eucalyptus propinqua*, *E. siderophloia*.

Desmodium acanthocladum

Model available

Distribution: Lismore district. E.g. Bungabee SF.

Likely habitat: Mainly along rivers and creeks.

Additional known habitat details: On basalt-derived alluviums.

Dichanthium setosum

Distribution: Inverell, Warialda, Tingha, Glen Innes, Backwater, Guyra, Armidale, Tamworth, Ewingar, Tabulam.

Likely habitat: Woodland, grassland.

Additional known habitat details:

Survey Season: Summer, when flowering.

Diospyros mabacea

Distribution: Tweed and Oxley Rivers. Eg. Limpinwood, Tyalgum, Eungella, Murwillumbah, Stotts Island, Mebbin SF.

Likely habitat: Lowland subtropical rainforest and riverine rainforest.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Additional known habitat details: Occurs on lower altitude basalt, 220 to 400 metres altitude, alluvial flats, well drained. Also on margins of adjacent tall open forest with rainforest mid-storey. In association with *Ficus waukesoniana*, *F. obliqua*, *Heritiera trifoliolata*, *Dendrocnide excelsa*, *Cryptocarya erythroxylon*, *C. obovata*, *Toona ciliata*, *Sloanea woolsii*, *Randia chartacea*.

Diospyros major var. ebenus

Distribution: Tumbulgum, Hogans Scrub.

Likely habitat: Lowland subtropical rainforest.

Additional known habitat details:

Diploglottis campbellii

Distribution: Between Richmond River and Nerang River Qld. Eg. Teven, Mullumbimby, Mt Warning, Chillingham, Durrumbul, Eungella.

Likely habitat: Subtropical, riverine rainforest.

Additional known habitat details: Occurs on gentle slopes, creek flats, lower-mid-upper slopes, occasionally on rocky slopes.

Dipodium atropurpureum

Distribution: Northern tablelands north from Oxley highway.

Likely habitat: Tall open forest and drier eucalypt forests.

Additional known habitat details: On basalt-derived rich red-brown loam or poorer stony clay soils.

Dipodium pulchellum

Distribution: North from Tia Falls, near Walcha. Also Wardell and Grevillia.

Likely habitat: Sclerophyll forest.

Additional known habitat details: On basalt-derived soils.

Survey season: Flowers December - May.

Diuris disposita

Distribution: Kempsey – Willawarrin area. Recorded from Yarravel NR and Old Station SF.

Likely habitat: In grassland in open sclerophyll forest.

Additional known habitat details: In Eucalypt forest with a grassy understorey. Recorded growing in *Imperata cylindrica* understorey on shale-derived clays. May not produce flowers in dry periods. Flowers recorded Sep – Oct.

Diuris pedunculata

Distribution: Port Jackson to Tenterfield. Eg. Deepwater, Ebor, Mt Boss (Wauchope), NW of Armidale, Walcha, Bendeemer, Scone, Boorolong SF.

Likely habitat: Sclerophyll forest.

Additional known habitat details: Grassy areas.

Seasonal Survey: August to September inclusive, when flowering.

Diuris praecox

Distribution: Ourimbah, Nelsons Bay.

Likely habitat: Sclerophyll forest.

Additional known habitat details: Coastal and near coastal ranges.

Seasonal Survey: July to early September inclusive, when flowering.

Diurus venosa

Distribution: Barrington Tops, Brackendale & New England NP. Eg. Barrington Tops SF, Barrington Tops NP, north of Riamukka SF (Brackendale), New England NP.

Likely habitat: Grassy understorey of eucalypt woodland or in subalpine grasslands or herbfields.

Additional known habitat details: In moist areas at altitudes > 1100 metres on dark humic loam or basalt soil. Associated species include *E. pauciflora*. Recorded from margins of high altitude swamps.

Seasonal Survey: November to January inclusive, when flowering.

Doryanthes palmeri

Distribution: Mt Warning Caldera.

Likely habitat: Exposed rocky outcrops in wet sclerophyll forest.

Additional known habitat details:

Drynaria rigidula

Distribution: north from Clarence River, Maclean, Tanglewood east of Burringbar, Richmond Gap (adjacent Border Ranges NP), Pottsville Beach (Billinudgel NR).

Likely habitat: Rainforest.

Additional known habitat details: On rocks or on plants as an epiphyte, recorded on *Acacia melanoxylon*.

***Elaeocarpus* sp. Rocky Creek (syn. *E. sp. Minyon*)**

Distribution: Nightcap & Koonyum Ranges. Eg. Whian Whian SF, Nullum SF, Snows Gully NR.

Likely habitat: Subtropical & warm temperate rainforest & wet sclerophyll forest.

Additional known habitat details: On deep brown podzolics formed on rhyolite and basalt-rhyolite mix.

Elaeocarpus williamsianus

Model available

Distribution: North of Byron Bay. E.g. Burringbar.

Likely habitat: Regrowth subtropical/warm temperate rainforest.

Additional known habitat details: On palaeozoic metamorphics.

Eleocharis tetraquetra

Distribution: Rocky Creek and Whitemans Creek, Fortis Creek NP (NW Grafton), Boambee to Qld

Likely habitat: Swampy areas

Additional known habitat details: Occurs in and on the edge of freshwater swamp margins and streams, on humic gleyed silts and plastic mottled clays. In association with *Isachne globosa*, *Ischaemum australe* var *villosum* and other sedges.

Survey Season: December to February inclusive, when flowering and seeding. Difficult to detect when not fertile.

Endiandra hayesii

Distribution: North from the Richmond River. Eg. Big Scrub FR, Broken Head FR, Minyon Falls FR, Nightcap NP, Snows Gully FR, Mebbin, Mooball, Nullum, Whian Whian & Wollumbin SFs.

Likely habitat: Subtropical & littoral rainforest, & wet sclerophyll forest.

Additional known habitat details: Sedimentary soils & alluvium in cool, moist, sheltered valleys.

Endiandra floydii

Model available

Distribution: Tweed district.

Likely habitat: Warm-temperate and subtropical rainforest.

Additional known habitat details: To 430 metres altitude.

Endiandra muelleri* spp. *bracteata

Model available

Distribution: North from Maclean.

Likely habitat: Usually subtropical rainforest.

Additional known habitat details: Chiefly at lower altitudes.

Eriostemon ericifolius

Distribution: Upper Hunter, Pilliga.

Likely habitat: Heath, dry sclerophyll forest.

Additional known habitat details: Damp sandy flats and gullies.

Eriostemon myoporoides* spp. *conduplicatus

Distribution: Grafton, Tenterfield and Howell districts.

Likely habitat: Dry sclerophyll forest and heath.

Additional known habitat details:

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Eucalyptus approximans

Distribution: Barren Mountain.

Likely habitat: Mallee shrubland.

Additional known habitat details: Skeletal soil on trachyte, above 1000 metres altitude.

Eucalyptus caleyi ssp. oventenii

Distribution: West of Tenterfield.

Likely habitat: Woodland.

Additional known habitat details: Grassy, drier shallower soils of moderate fertility, on granite.

Eucalyptus camfieldii

Distribution: Gosford to Royal NP, Ku-ring-gai NP, Berowra Valley Regional Park.

Likely habitat: Woodland, coastal scrub heath.

Additional known habitat details: Sandy soils on sandstone with clay lenses and poorly drained laterites, often restricted drainage.

Eucalyptus camphora ssp. relictata

Distribution: North east of Guyra. Only known in NSW from Crown Mountain (Warra National Park)

High probability habitat: Tableland swamps, wet open woodland

Additional known habitat details: Recorded in wet heath on coarse sandy soil on leucadamellite.

Eucalyptus fracta

Distribution: Northern escarpment of the Broken Back Range, near Cessnock Recorded from Pokolbin SF.

Likely habitat: Dry open forest/woodland.

Additional known habitat details: Restricted to shallow soils along the upper escarpment of steep sandstone range.

Eucalyptus glaucina

see Metapopulation Unit description

Eucalyptus mckieana

Distribution: Guyra, Tingha, Longford (Armidale), Bendemeer.

Likely habitat: Woodland, dry sclerophyll forest.

Additional known habitat details: Grassy open forest. Poor sandy loam on acid granite.

Eucalyptus nicholii

Distribution: Niangala to Glen Innes, particularly in the area from Walcha to Glen Innes & east thereof. Eg. Winterbourne SF vicinity, Donnybrook SF, Oxley Wild Rivers NP.

Likely habitat: In grassy or sclerophyll woodland.

Additional known habitat details: Shallow relatively infertile soils on shales & slates. Scattered distribution on rocky ridges especially of porphyry and granite; absent from high, wet granite country in the eastern part of the Northern Tablelands.

Eucalyptus pachycalyx ssp. banyabba

Distribution: Banyabba NR.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Sandstone substrate.

Eucalyptus parramattensis ssp. decadens

Distribution: Tomago to Kurri Kurri & Williamstown.

Likely habitat: In dry sclerophyll woodland.

Additional known habitat details: On infertile sandy soils in low-lying, often swampy sites. Associated trees include *Angophora bakeri*, *Eucalyptus signata* & *E. globoidea*.

Eucalyptus pumila

Distribution: Broken Back Range, Pokolbin SF.

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Likely habitat: Sclerophyll shrubland.

Additional known habitat details: Steep sandy skeletal soils.

Eucalyptus rubida ssp. barbigerorum

Distribution: Timbarra Plateau, Glenn Innes, Guyra, Tingha.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Soils moderately fertile, low-lying areas.

Eucalyptus tetrapleura

Distribution: Kungala to Gibberagee. Eg. Glenugie Peak FR, Wells Crossing FR.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Moderately fertile soil, often in lower areas of poorer drainage. Recorded with *Eucalyptus bancroftii*, *E. seeana*, *E. eugenioides*, *E. crebra*, *Corymbia henryi*.

Euphrasia arguta

Distribution: Bathurst to Walcha area, Hanging Rock – Nundle.

Likely habitat:

Additional known habitat details: Grassy areas near rivers.

Seasonal Survey: October to January inclusive, when flowering.

Euphrasia bella

Distribution: MacPherson Range, Qld-NSW border, The Pinnacle (Border Ranges NP).

Likely habitat: Cool temperate rainforest.

Additional known habitat details: exposed sites, flowers Oct-Dec.

Euphrasia collina ssp. muelleri

Distribution: Barren Mountain (New England NP), Dorrigo.

Likely habitat: Grassland and damp places.

Additional known habitat details: Flowers August-November.

***Euphrasia ruptura* (syn *E. sp.* ‘Tamworth’)**

Distribution: Tamworth.

Likely habitat:

Additional known habitat details:

Floydia praealta

Distribution: North from the Richmond River. Eg. Boatharbour NR, Broken Hd NR, Johnstons Scrub NR, Limpinwood NR, Mt Warning NP, Nightcap NP, Numinbah NP, Victoria Park NR. Whian Whian & Wollumbin SFs.

Likely habitat: Rainforest.

Additional known habitat details: Chiefly riverine and subtropical rainforest.

Fontainea australis

Model available

Distribution: North of Lismore. E.g. Wanganui, Goonengerry, upper Couchy and Crystal Creeks.

Likely habitat: Lowland subtropical rainforest.

Additional known habitat details: Associated species include *Argyrodendron trifoliolatum*, *Diospyros mabacea*, *Toona australis*, *Dendrocnide excelsa*. On basaltic alluvial flats.

Fontainea oraria

Distribution: Lennox Head.

Likely habitat: Low littoral rainforest.

Additional known habitat details: On Kraznozems.

Gastrodia sesamoides

Distribution: North Coast, Northern Tablelands.

Likely habitat: High rainfall forest; sclerophyll forest and rainforest margins.

Additional known habitat details: Usually grows in accumulated litter in moist sites. Often associated with dead trees.

Seasonal survey: Flowers August - January.

Gaultheria viridicarpa ssp. merinoensis

Distribution: Mt Merino (MacPherson Range).

Likely habitat: Woodland.

Additional known habitat details: Montane, basalt crevices, cliffs.

Gaultheria viridicarpa ssp. veridicarpa

Distribution: Allans Water, Majors Point (Ebor), Point Lookout.

Likely habitat: Woodland.

Additional known habitat details: Montane, basalt crevices, cliffs.

Geijera paniculata

Distribution: Rivertree district, New Italy, Lismore and Wardell districts.

High probability habitat: Dry and subtropical rainforest.

Additional known habitat details: Known from swamp forest-rainforest ecotone and on metamorphic rocks in dry subtropical rainforest.

Gentiana wissmannii

Model available

Distribution: Northern Tablelands. E.g. Yooronah, Guy Fawkes, Sandy Ck and west of Round Mountain.

Likely habitat: In short herbfields, wet heaths and margins of acid swamps.

Additional known habitat details: On moist, peaty, sandy soil on Round Mountain Lucoadamellite.

Associated species include *Poa sieberana*, *Schoenus ericetorum*, *Dichondra repens*, *Luzula* sp., *Haloragis heterophylla*, *Centella asiatica*, *Leptospermum gregorium*, *Restio stenocoleus*, and *Sphagnum*.

Gingidia montana

Distribution: Ebor, Tyringham, Point Lookout.

Likely habitat: Woodland, Cool Temperate rainforest.

Additional known habitat details: Occurs on cliff faces and rock crevices at 1400-1500 metres altitude.

Goodenia macbarronii

Distribution: South of Guyra to Inverell. Eg. Moredun (SW Glen Innes), Chandlers Peak (Guyra).

Likely habitat:

Additional known habitat details: Damp sandy soils.

Grammitis stenophylla

Distribution: Whian Whian SF, Sherwood NR, Mt Belmore SF.

Likely habitat: Rainforest, moist forest, dry sclerophyll forest.

Additional known habitat details: Moist sandstone rock faces.

Grevillea banyabba

Model available

Distribution: North west of Grafton. Eg. Fortis Creek, Coaldale, Banyabba, Copmanhurst.

Likely habitat: Open eucalypt forest near or at top of ridges or mid-slopes.

Additional known habitat details: Associated species include *Eucalyptus psammitica*, *E. pachycalyx* ssp. *banyabba*.

Grevillea beadleana

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Distribution: From the Apsley River to the Guy Fawkes River, also near Grafton. Eg. Guy Fawkes River NP, Apsley River, Moona Plains, Shannon Ck (Coutts Crossing), Torrington area.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Grows among siliceous granitic outcrops (bluffs, creeks) yielding low nutrient, acidic, well-drained soils. Granite scarps & exposures, cliff edges, dry sclerophyll forest. Also on sandstone and metasediments.

Grevillea evansiana (= *G. diffusa* ssp. *evansiana*)

Distribution: Currant Mountain Gap area, east of Rylstone.

Likely habitat: Dry sclerophyll forest, woodland.

Additional known habitat details: Usually on Hawkesbury Sandstone, occasionally swampy heath on sandy soil.

Grevillea guthrieana

See Metapopulation Unit description

Grevillea masonii

Distribution: Known only from a few localities near Grafton. Eg. Whiporie and Gibberagee SFs, Lawrence – Casino Rd.

Likely habitat: Dry sclerophyll forest, woodland.

Additional known habitat details: Disturbed road verges & cultivated or grazed pasture at low elevations in what was formerly open eucalypt woodland. Grows in gravelly loams. Recorded in flat, low-lying red gum community on heavier soils.

Grevillea mollis

Distribution: Known only from Gibraltar Range NP

High probability habitat: On granite on steep slopes and along a creek in eucalypt forest.

Additional known habitat details: Recorded in heathy open forest with *Eucalyptus campanulata*, *Podolobium aestivum*.

Grevillea obtusiflora ssp. *obtusiflora*

Distribution: Clandulla SF near Rylstone, north of Bathurst.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Occurs on geology comprised of shale, siltstone, conglomerate and sandstone in sandy loam soils, 720 metres altitude. In association with *Eucalyptus crebra*, *E. dealbata*, *E. tenella*, *Callistemon linearis*, *Acacia buxifolia*, *A. elongata*.

Grevillea obtusiflora ssp. *fecunda*

Distribution: Capertee area.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details:

Grevillea parviflora ssp. *parviflora*

Distribution: Prospect, Camden, Appin to Arcadia, Putty, Cessnock, Cooranbong.

Likely habitat: Woodland, dry sclerophyll forest.

Additional known habitat details: Southern sites on light clayey soils, northern sites on sandy soils.

Grevillea quadricauda

Model available

Distribution: North-west of Grafton. Eg. Mt Neville NR, Mt Belmore SF.

Likely habitat: Gravelly loam or sand in Eucalypt woodland.

Additional known habitat details: Usually along creeks or drainage lines.

Grevillea rhizomatosa

Distribution: Known only from Dandahra Creek, Gibraltar Range NP

High probability habitat: Dry sclerophyll forest with heath understorey; moist eucalypt forest.

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Additional known habitat details: Recorded on brown loam in heathy eucalypt forest, and along creek in wet forest.

Grevillea scortechinii* spp. *sarmentosa

Model available

Distribution: Northern Tablelands. Eg. Backwater, Crown Mountain, Mann River NR.

Likely habitat: Dry sclerophyll forest, woodland and heath on granite soils and sandy podsols over granite and leucodermellite.

Additional known habitat details: Associated species include: *Allocasuarina rigida*, *Calytrix tetragona*, *Eucalyptus dalrympleana* spp. *heptantha*, *E. radiata*, *E. pauciflora*, *E. acaciiformis*, *E. caliginosa*, *E. codonocarpa*, *E. nova-anglica*, *Imperata cylindrica*, *Kunzea obovata*, *Leptospermum nova-anglica*, *Persoonia cornifolia*, *Monotoca scoparia*.

Grevillea shiressii

Distribution: Gosford area, Mullet Creek (Wondabyne), Mooney Mooney Creek (Brisbane Water NP).

Likely habitat: Wet sclerophyll forest.

Additional known habitat details: Creek banks, sandy alluvial soil on Hawkesbury sandstone.

Hakea fraseri

Model available

Distribution: Upper Macleay gorges and Collarenebri district. E.g. Wollomombi, Dangar, Tia and Apsley Falls.

Likely habitat: Woodland and dry rocky slopes.

Additional known habitat details:

Hakea trineura

Distribution: From Lansdowne to Wauchope. Eg. Starrs Creek and Newbys Creek, Lansdowne SF, Tinebank Mountain area, Mt Boss SF.

Likely habitat: Sclerophyll forest, on sheltered, often rocky, slopes and in gullies on conglomerate or granite.

Additional known habitat details: Restricted to the near coastal ranges, in dry to wet sclerophyll forest, sometimes bordering rainforest gullies. Recorded with *Eucalyptus pilularis*, *Syncarpia glomulifera*, *E. microcorys*, *E. carnea*, *Acacia elata*, *E. agglomerata*.

Haloragis exalata* ssp. *exalata

Distribution: Central Coast, South Coast, North Western Slopes, Clifton, Marramarra NP.

Likely habitat: Open forest.

Additional known habitat details: Damp places near watercourses, near wetlands.

Haloragis exalata* ssp. *velutina

Distribution: Dalmorton, Bellbrook (Kempsey), Macleay-Apsley Gorges.

Likely habitat: Riparian shrubland, gravelly riverbeds.

Additional known habitat details: Damp places near watercourses.

***Hedyotis galioides* (syn. *Oldenlandia galioides*)**

Distribution: Gunderbooka Mountains, south of Bourke, also Casino district. Eg. Whiporie SF, Royal Camp SF.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Seasonally damp(inundated) areas, herb and grassy areas under open eucalypt forest.

Seasonal Survey: January to May inclusive.

Hibbertia hexandra

see Metapopulation Unit description

Hibbertia marginata

Distribution: Southern Richmond Range. Eg. Mt Belmore SF, Mt Marsh SF, Mt Neville NR, Devils Pulpit SF, Gibberagee SF.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Grassy forest on sandstone. Flowers spring.

Hibbertia procumbens

Distribution: Mangrove Mountain area, Strickland SF.

Likely habitat: Heath.

Additional known habitat details: *Banksia ericifolia*, *Allocasuarina distylla*, skeletal sandy soil over sandstone, 0-300 metres altitude. Flowers October.

Hicksbeachia pinnatifolia

See Metapopulation Unit descriptions.

Homoranthus lunatus

Distribution: Boonoo Boonoo (Tenterfield); Torrington

High probability habitat: Dry sclerophyll forest/woodland

Additional known habitat details: Granite outcrops and ridges

Homoranthus prolixus

Distribution: Howell district (northern tablelands and north western slopes).

Likely habitat: Heath, dry sclerophyll forest.

Additional known habitat details: Sandy, skeletal soils.

Hypolepis elegans

Distribution: Richmond River, Pimlico.

Likely habitat: Open sclerophyll forest.

Additional known habitat details: Open places on margins.

Isoglossa eranthemoides

Distribution: Richmond-Tweed valleys, Eureka (Morton's Scrub), Bangalow (Hermans Scrub), Nashua (Emery's Scrub). Eltham (Dawes Bush), Inner Pocket NR, Mt Warning NP (Breakfast Creek), Booyong Flora and Fauna Reserve, Andrew Johnson NR

Likely habitat: Subtropical Rainforest

Additional known habitat details: lowland subtropical rainforest on volcanics, complex notophyll vine forest, 10-460 metres altitude, sub-alliances 1,3,and 5, palm forest

Survey Season: may be confused with *Pseueranthemum variable*, flowers known in October

Knoxia sumatrensis

Distribution: Mullumbimby.

Likely habitat:

Additional known habitat details:

Kunzea rupestris

Distribution: Glenorie to Maroota (Wisemans Ferry), Jerry's Plain (Singleton), Marramarra NP.

Likely habitat: Heath.

Additional known habitat details: In shallow soil depressions on ridge-top sandstone rock platforms, 95-220 metres altitude. Associated with *Calytrix tetragona*, *Kunzea capitata*, *Grevillea speciosa*, *Lepyrodia scariosa*, *Schoenus imberbis*.

Lasiopetalum longistamineum

Distribution: Mt Dangar, Gungal, Wybong.

Likely habitat:

Additional known habitat details: Sandy soil with *Callistemon*, *Leptospermum*.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Lepidium hyssopifolium

Distribution: Narrabri, Maryland (Urbenville), Armidale, Uralla, Dorrigo.

Likely habitat: Woodland.

Additional known habitat details: Grassy Eucalypt woodland, low open *Casuarina* woodland with grassy groundcover, tussock grassland.

Lepidium peregrinum

Distribution: near Queensland border, northern Tablelands.

Likely habitat:

Additional known habitat details:

Leptospermum deanei

Distribution: Garigal NP, Ku-ring-gai NP, Pennant Hills Park, Berowra Valley Regional Park.

Likely habitat: Heath, woodland, forest.

Additional known habitat details: Foothills above riparian vegetation.

Leucopogon confertus

Distribution: Silent Grove (Torrington).

Likely habitat: Open forest, woodland.

Additional known habitat details: Granitic rocky areas.

Lindsaea brachypoda

Distribution: Tumbulgum, Cudgera, Mullumbimby, Brunswick River, Minyon Falls.

Likely habitat: Subtropical rainforest.

Additional known habitat details: On rocks, banks.

Lindsaea fraseri

Distribution: Hastings Point to Bogangar.

Likely habitat: Swamp forest, open forest.

Additional known habitat details:

Lindsaea incisa

Distribution: Between Woombah & Coffs Harbour. Eg. Newfoundland SF, Fortis Ck NP, Bundjalung NP, Waihou FR.

Likely habitat: Sclerophyll forest, riparian shrubland bordering creeks.

Additional known habitat details: Damp sandy places, open forest, amongst rocks, sedge-dominated drainage lines.

Macadamia tetraphylla

Distribution: Chiefly in the Richmond & Tweed Rivers extending into the Numinbah Valley & Coomera River, Qld. Eg. Goonengerry and Whian Whian SF, Davis Scrub NR, Limpinwood NR, Minyon Falls FR, Mt Warning NP, Nightcap NP, Numinbah NR, Victoria Park NR.

Likely habitat: Rainforest.

Additional known habitat details: Subtropical rainforest near the coast.

Macrozamia johnsonii (syn. *metres. moorei*)

Distribution: Known only from the Dalmorton area. Eg. Chaelundi & Dalmorton SFs, Chandlers Ck FR, Chaelundi NP.

Likely habitat: Wet sclerophyll forest, dry sclerophyll forest & the margins of drier rainforest.

Additional known habitat details: Mostly in foothills of ranges in tall wet sclerophyll forest & margins of rainforest, generally on steep slopes.

Marsdenia longiloba

Distribution: From the Barrington Tops to south-east Qld. Eg. Billilimbra, Edinburgh Castle & Mt Boss SFs.

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Likely habitat: Wet sclerophyll forest, with rainforest species in understorey.

Additional known habitat details: Usually occurs in lowland wet sclerophyll forest, in ecotones between rainforest & wet sclerophyll forest, & sometimes in areas with rock outcrops. Also in subtropical rainforest & warm temperate rainforest, mostly below 200 metres alt.

Melaleuca biconvexa

Distribution: From Jervis Bay to Port Macquarie, but mainly in the Gosford/Wyong area. Recently recorded from Wallingat NP.

Likely habitat: Grows in damp places.

Additional known habitat details: The species may occur in dense stands forming a narrow strip adjacent to watercourses, in association with other *Melaleuca* species or as an understorey species in wet forest.

Melaleuca groveana

Distribution: North from Yengo NP. Eg. Port Stephens, Broken Bago SF, Way Way SF, Wild Cattle Ck SF, Pokolbin SF, Corrabare SF, Mt Boss SF, Keppara SF.

Likely habitat: Rocky ridges and slopes in open dry forest, woodland or heath.

Additional known habitat details: Often in exposed sites. Associated species include *Eucalyptus punctata*, *E. sparsifolia*, *E. crebra*, *E. carnea*, *E. biturbinata*, *E. agglomerata*, *Allocasuarina littoralis*.

Melaleuca tamariscina* spp. *irbyana

Distribution: South of Grafton to Casino.

Likely habitat: In open eucalypt forest on poorly drained areas.

Additional known habitat details: Recorded on poorly drained quaternary alluviums and low quartz metasediments in association with *Eucalyptus moluccana*, *E. siderophloia*, *E. seeana*, *Corymbia henryi* and a variety of understorey shrubs and trees usually including other species of *Melaleuca*.

***Melichrus hirsutus* (syn. *Melichrus species A*)**

Distribution: North of Glenreagh to north of Grafton. Eg. Kremnos Ck, Black Swamp Ck, Shannon Ck VCL, Banyabba NR, Wombat Ck, north of Copmanhurst, Pillar Valley, Newfoundland SF.

Likely habitat: Dry sclerophyll forest, with species-rich understorey on quartzitic sandstone.

Additional known habitat details: On sandstone at low altitudes (20-150 metres) in sandy soils including both grey-brown podsolics & lithosols with conspicuous sandstone outcrops. Mean annual rainfall c. 1200-1300 millimetres. Also in dry sclerophyll forest with well-developed shrub layer of many species. Flowers March – August.

Melichrus* sp. *Gibberagee

Distribution: Lower Richmond Range, south of Casino. Eg. Gibberagee SF.

Likely habitat: Dry sclerophyll forest.

Additional known habitat details: Tall open forest, grey gum on heavier red clay soils. Recorded with *Eucalyptus propinqua*, *E. sideropholia*, *Corymbia henryi* with low, grassy understorey.

Micromelum minutum

Distribution: Lismore - considered extinct in NSW.

Likely habitat: Rainforest.

Additional known habitat details: Drier lowland rainforest.

Monotaxis macrophylla

Distribution: Known from the Backwater district, as well as north-western slopes and plains

High probability habitat: Amongst rock outcrops at high altitude.

Additional known habitat details: rocky ridges and hillsides. Short-lived post-fire coloniser.

Muellerina myrtifolia

Distribution: Legume (MacPherson Range) to Qld. Eg. Acacia Creek, Wilsons Peak (Urbenville)

Likely habitat: Dry rainforest.

Additional known habitat details: Parasitic on *Croton* spp., *Parsonsia* spp. and *Pandorea* spp.

Myriophyllum implicatum

Distribution: Acacia Creek (Urbenville), Wilson's Peak.

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Likely habitat:

Additional known habitat details: Damp positions in riparian areas, coastal situations, freshwater seepage.

Neoastelia spectabilis

Distribution: New England NP.

Likely habitat: Warm temperate rainforest, cool temperate rainforest.

Additional known habitat details: Nothofagus moorei forest, rock crevices, seepages, 900-1150 metres altitude.

Oberonia titania

Distribution: North from the Macleay River.

Likely habitat: Coastal districts, including lower ranges.

Additional known habitat details: Particularly on *Melaleuca alternifolia* in coastal swamps and on *Trochocarpa laurina* in mixed forest and rainforest; sometimes on rock faces. Tends to prefer fairly stout limbs and tree trunks.

Ochrosia moorei

Distribution: North from the Richmond River. Eg. Whian Whian & Wollumbin SFs, Big Scrub FR, Boatharbour NR, Numinbah NR, Victoria Park NR.

Likely habitat: Riverine & subtropical rainforest & ecotones.

Additional known habitat details: On deep heavy alluvial soil, usually on basalt, & often near creeks. Associated species include *Aphananthe philipinensis*, *Capparis arborea*, *Planchonella australis*, *Ficus* species. Sporadic flowering.

Olax angulata

Distribution: Yuraygir NP, Sandon Point (Wooli).

Likely habitat: Wet heath, woodland.

Additional known habitat details: On sandy soils near swamps.

Olearia cordata

Distribution: Wisemans Ferry to Wollombi, Yengo NP, Wollemi NP, Colo River, St Albans.

Likely habitat: Woodland to dry sclerophyll forest.

Additional known habitat details: Exposed Hawkesbury sandstone ridges, shallow or skeletal sandy soil, 150-500 metres altitude, steep to gentle slopes. Associated species include *Angophora costata*, *A. bakeri*, *Eucalyptus punctata*, *Corymbia eximia*, *Allocasuarina torulosa*, *Acacia linifolia*, *Persoonia linearis*.

Olearia flocktoniae

Distribution: From Brooklana - Marengo north of the Dorrigo Plateau. Eg. Brooklana, Ellis, Hyland, Marengo, Wild Cattle Ck SFs, Dorrigo NP, Mt Hyland NR.

Likely habitat: Wet sclerophyll forest & warm temperate rainforest edges or gaps, on Brooklana Beds metasediments.

Additional known habitat details: Pioneer species of recently disturbed areas on sedimentary & granitic substrates. Flowers Feb - March.

Owenia cepiodora

Model available

Distribution: North from the Richmond River. E.g. Cherry Tree SF, Unumgar SF, Border Ranges, Whian Whian SF, Clunes, Rosebank, Dorrroughby, Hayters Hill.

Likely habitat: Subtropical and dry rainforest, or near ecotone of rainforest and eucalypt forest.

Additional known habitat details: Associated species include *Austromyrtus bidwillii*, *Araucaria cunninghamii*, *Lophostemon confertus*, *Eucalyptus saligna*.

Parsonsia dorrigoensis

Distribution: From Kendall to Woolgoolga. Eg. Kerewong SF, Ingalba SF, Newry SF, Bellinger River NP, Dorrigo NP, New England NP, Conglomerate SF.

Likely habitat: In subtropical and warm-temperate rainforest and wet or dry sclerophyll forest.

Additional known habitat details: Found in subtropical & warm temperate rainforests, especially in more open parts & on rainforest margins, & in wet or dry sclerophyll forests on brown clays overlying

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metasediments. Associated species include *Lophostemon confertus*, *Eucalyptus campanulata*, *E. microcorys*, *E. pilularis*, *E. saligna*, *E. ancophila*, *E. carnea*, *E. siderophloia*, *Schizomeria ovata*, *Acmena smithii*, *Trochocarpa laurina*, *Callicoma serratifolia*.

Persicaria elatior

Distribution: Richmond Range SF, Cherry Tree SF, Coffs Harbour, Raymond Terrace, Gibberagee SF.

Likely habitat: Swamps.

Additional known habitat details: Damp places.

Phaius australis

Distribution: North from Port Macquarie.

Likely habitat: Swamp, rainforest.

Additional known habitat details: Margins of Melaleuca swamp forest, permanently moist soil Cobaki, Bogangar, Cudgen, Byron Bay, Suffolk Park, Ballina, Broadwater, Bundjalung, Coffs Harbour, Port Macquarie area.

Phaius tankervilleae

Distribution: North from Port Macquarie.

Likely habitat: Swamps, sclerophyll forest.

Additional known habitat details: Melaleuca forests and swamps margins of *Melaleuca* swamp forest, permanently moist soil.

Phebalium glandulosum* ssp. *eglandulosum

Distribution: Warialda, Torrington District, northern tablelands.

Likely habitat: Heath, open forest.

Additional known habitat details: Amongst rocky granite outcrops.

Picris evae

Distribution: North from Inverell area.

Likely habitat:

Additional known habitat details: Black soils.

Seasonal Survey: Spring-summer, when flowering.

Pimelea venosa

Distribution: Bolivia Hill, Bluff Rock (Tenterfield).

Likely habitat: Open woodland with grassy understorey on granite.

Additional known habitat details: Granite country.

Plectranthus alloplectus

Distribution: Border Ranges and surrounding areas. Eg. Woodenbong, Terania Creek, Bald Knob SF

Likely habitat: Heath and scrub.

Additional known habitat details: Cliffs, steep ledges and flat rocky areas.

Seasonal Survey: January to April inclusive, when flowering.

Plectranthus nitidus

Distribution: North from Hortons Ck. Eg. Terania Ck, Nullum SF, Richmond Range SF.

Likely habitat: Cliff bases adjoining tall forest.

Additional known habitat details: Rocky cliffs in rainforest.

Seasonal Survey: February to May inclusive, when flowering.

Polygala linariifolia

Distribution: Warialda to Weebah Gate (Qld border), and from Casino to Grafton, eg. Royal Camp SF, Southgate SF.

High probability habitat: Dry sclerophyll forest on low-relief, seasonally wet sites with a grass and herb understorey.

Additional known habitat details: Spotted Gum Forest

Survey Season: Annual herb, Flowers September-February

Pomaderris brunnea

Distribution: From Tantawangalo SF to south of Walcha. Eg. Picton area, upper Cordeaux Dam, Wollemi NP, Menangle, Nepean River, Tantawangalo SF, Tuggolo SF.

Likely habitat: Woodland & open forest.

Additional known habitat details: On river bank, intermediate between Silvertop Stringybark & New England Blackbutt.

Pomaderris queenslandica

Distribution: Gloucester district, Bagawa SF (Nana Glen), Wingham area, old record from Wild Cattle Creek SF.

Likely habitat: Moister sclerophyll forest with shrubby understorey.

Additional known habitat details: Temperate areas, wetter climate.

***Prostanthera askania* (syn. *P. sp. 6 Strickland State Forest*)**

Distribution: Gosford-Ourimbah-Narara area. Eg. Strickland SF, Niagara Park, Stella's Brush, Askania Park, Kendalls Glen.

Likely habitat: In or adjacent to rainforest.

Additional known habitat details: On ridges in or adjacent to rainforest dominated by *Cryptocarya microneura*, *Acacia irrorata*, *Tristaniopsis collina*, *Callicoma serratifolia*, *Eucalyptus saligna*, *Acmena smithii*. Grows in sandy soils, overlying sandstone. Flowers in Spring.

Prostanthera densa

Distribution: North Coast to South Coast. Eg. Royal NP.

Likely habitat: Dry sclerophyll forest, tall shrubland.

Additional known habitat details: *Corymbia gummifera*, *Angophora costata*, *Acacia terminalis*, *Banksia integrifolia*, *Epacris longiflora*, coastal headlands near coastal ranges, 0-100 metres altitude, sandstone outcrops, shallow soil.

Prostanthera staurophylla

Distribution: Emmaville, Torrington, Henry River (Backwater), Mt Mitchell (SE Glen Innes).

Likely habitat: Heath, dry sclerophyll.

Additional known habitat details: Moist patches around granite outcrops.

***Prostanthera sp. Somersby* (syn. *P. junonis*)**

Distribution: Somersby Plateau, Somersby, Brisbane Water NP.

Likely habitat: Open forest, low woodland, open scrub, heath.

Additional known habitat details: Occurs on deeply weathered Hawkesbury Sandstone and Hawkesbury Sandstone with components from the Narrabeen Group. In association with *Eucalyptus piperita*, *Angophora costata*, *Corymbia gummifera*, *C. eximia*, *E. punctata*, *E. haemostoma*, *Banksia serrata*, *B. ericifolia*, *Hakea teretifolia*, *Allocasuarina distyla*, *Baeckea* spp.

***Prostanthera sp. Bundjalung* (syn. *P. palustris*)**

Distribution: Hell Hole, Black Rocks (Bundjalung NP).

Likely habitat: Wet heath, woodland.

Additional known habitat details: On alluvial sandy soils subject to prolonged waterlogging. Associated species include *Eucalyptus robusta*, *Angophora woodsiana*, *Banksia oblongifolia*, *Ptilantherium deustum*, *Xanthorrhoea fulva*, *Aotus ericoides*.

Pseudanthus ovalifolius

Distribution: North from Torrington (Carpet Snake Gap).

Likely habitat: Open forest.

Additional known habitat details: Rocky situations, flowers summer.

Psilotum complanatum

Distribution: Ballina.

Likely habitat: Rainforest.

Additional known habitat details: Often on base of other epiphytes.

***Pterostylis cucullata* (syn. *P. sp D*)**

Distribution: Possibly restricted to Barrington Tops.

Likely habitat: Montane forest.

Additional known habitat details: Moist sheltered slopes in montane forest.

Seasonal Survey: August to October inclusive, when flowering.

Pterostylis gibbosa

Distribution: Nowra to Milbrodale (Hunter Valley), Yallah, Albion Park, Currumbene SF, Western Sydney.

Likely habitat: Woodland, dry sclerophyll forest.

Additional known habitat details: In association with *Eucalyptus tereticornis*, *E. amplifolia*, *E. longifolia*, *Melaleuca decora*, *Leucopogon juniperinus*, *Themeda australis*, *Corymbia maculata*, *E. crebra*, *E. moluccana*, *Callitris endlicheri*. Soils from undifferentiated siltstone, shale and sandstone and conglomerate, red and green claystone. 10-30 metres altitude in Illawarra and 150-160 metres in the Hunter Valley.

Seasonal Survey: August to November inclusive, when flowering.

Pterostylis nigricans

Distribution: North from Evans Head.

Likely habitat: Scrub, heath.

Additional known habitat details: Coastal.

Seasonal Survey: March to May inclusive, when flowering.

Pultenaea campbellii

See Metapopulation Unit descriptions

Pultenaea stuartiana

Distribution: Silent Grove (Torrington), Timbarra River, Mt Mitchell (SE Glen Innes), Gara Falls (Armidale).

Likely habitat: Sclerophyll forest, woodland.

Additional known habitat details: Granite, on rocky outcrops.

***Quassia* sp. Moonee Ck (syn. *Quassia* species B; *Quassia* sp. 1)**

Distribution: From Moonee area north of Coffs Harbour to north-east of Grafton. Eg. McRaes Knob; Flaggy Ck area, north-west of Glenreagh; Conglomerate, Orara East, Wedding Bells, Lower Bucca SFs.

Likely habitat: Wet sclerophyll forest and tall dry sclerophyll forest, mainly lower slopes.

Additional known habitat details: Tall open forest & disturbed wet sclerophyll forest on clay soil over metasediments. Mean annual rainfall is c. 1500 millimetres. Alt from 5-500 metres.

Randia moorei

Distribution: North from Broken Head. Eg. Brunswick Heads NR, Broken Hd NR, Stotts Is NR

Likely habitat: Rainforest.

Additional known habitat details: Subtropical, riverine & littoral rainforest in deep alluvial soils over basalt or shales or slates. Alt. to 500 metres.

***Rapanea* sp. A Richmond River**

Distribution: Coraki to Mt Warning. Eg. Cambridge Plateau, Ruthven, Mt Warning.

Likely habitat: Rainforest.

Additional known habitat details:

Rutidosis heterogama

See Metapopulation Unit descriptions

Sarcochilus fitzgeraldii

Distribution: Scattered distribution north from Kunderany Brook. Eg. New England NP, Mt Coramba, Dorrigo NP, Limpinwood NR, Mt Warning NP, Numinbah NR.

Likely habitat: Subtropical rainforest & brushbox forest.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Additional known habitat details: Often near streams, alt. between 500-700 metres. On rocks or near base of trees.

Seasonal Survey: October to November inclusive, when flowering.

Sarcochilus hartmannii

Distribution: North from Richmond River. Eg. Mt Warning NP, Nightcap NP.

Likely habitat: On rocks & rockfaces or the base of trees or cycads.

Additional known habitat details: In shallow humus on rocks, often occurring on exposed escarpments, from 500-100 metres alt. Substrates include basalt & greywacke. On boulders, cliff faces & escarpments, usually in quite exposed locations.

Seasonal Survey: October to November inclusive, when flowering.

Sarcochilus weinthalii

Distribution: On coastal ranges north from the Richmond River.

Likely habitat: Rainforest or rainforest edge.

Additional known habitat details: On trees in dry rainforest between 400-700 metres alt, often at edges of clearings. Recorded on *Heritiera actinophylla*.

Seasonal Survey: August to October inclusive, when flowering.

Sauropus albiflorus ssp. *microcladus* (syn. *Phyllanthus microcladus*)

Distribution: Mullumbimby, Main Arm, Grafton District.

Likely habitat: Rainforest

Additional known habitat details: Along creeks and rivers.

Senna acclinis

Distribution: North from Balgownie (Wollongong area). Eg. Oxley Wild Rivers NP, Toonumbar, Cape Hawke, Richmond Range, Hallidays Point, Big Scrub FR, Kangaroo River SF, Kerewong SF.

Likely habitat: Rainforest & sclerophyll forest.

Additional known habitat details: Littoral & subtropical rainforest, wet sclerophyll (*Eucalyptus grandis*) forest, dry sclerophyll forest (*E. pilularis*).

Seasonal Survey: Spring – summer when flowering and fruiting. Difficult to identify without flowers or fruit. Flowers spring and summer. Fruit summer (flat fruit).

Sophora fraseri

Distribution: North from Casino district. Eg. Toonumbar SF, Bungabee SF.

Likely habitat: Rainforest & wet & dry sclerophyll forest.

Additional known habitat details: In moist situations, often in or near subtropical & dry rainforest. Has been recorded from Eucalypt-Brushbox forest on ridge, & in mixed tall forest of Ironbark & Brushbox on a steep south facing slope on loam.

Styphelia perileuca

Distribution: Snowy Range & Round Mountain on the northern tablelands. Eg. Cathedral Rock NP, New England NP.

Likely habitat: Sclerophyll forest.

Additional known habitat details: In open eucalypt forests (with *Eucalyptus dalrympleana*, *E. youmanii*, *E. radiata*) on broad ridges & gentle slopes at 1250-1500 metres alt. In dry sclerophyll forest on sandy soil or light brown sandy loam over granite. One record from heath on trachyte.

Symplocos baeuerlenii

Distribution: North from the Nightcap Range. Eg. Boomerang Falls FR, Mt Warning NP, Nightcap NP, Numinbah NR.

Likely habitat: Rainforest & rainforest with a *Eucalyptus* species & *Lophostemon* overstorey.

Additional known habitat details: On rhyolite-derived clay soils & clays derived from metasediments in warm temperate rainforest & subtropical rainforest between 100-1000 metres alt. Associated species include *Cryptocarya erythroxylon*, *Sloanea woollsii*, *Ceratopetalum apetalum*, & *Callicoma serratifolia*.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Syzygium hodgkinsoniae

Distribution: North from the Richmond River. Eg. Big Scrub FR, Boomerang Falls FR, Brunswick Hds NR, Inner Pocket NR, Limpinwood NR, Minyon Falls FR, Mt Warning NP, Nightcap NP, Numinbah NR.

Likely habitat: Rainforest & rainforest with Lophostemon overstorey.

Additional known habitat details: Subtropical or gallery rainforest on rich alluvial soils.

Syzygium moorei

Distribution: North from the Richmond River. Eg. Brunswick Heads NR, Stotts Island NR, Binna Burra; Mullumbimby.

Likely habitat: Rainforest.

Additional known habitat details: Riverine & gully rainforests at low altitude.

Syzygium paniculatum

Distribution: Seal Rocks to Jervis Bay. Eg. Pacific Palms (Forster), Kurnell, Jervis Bay, Ourimbah Creek.

Likely habitat: Littoral rainforest, riparian vegetation.

Additional known habitat details: On sand and stabilised sand dunes, non-littoral records are from larger creek valleys in gallery rainforest.

Tarenna cameronii

Distribution: Lismore.

Likely habitat: Dry rainforest.

Additional known habitat details:

Tasmannia glaucifolia

see Metapopulation Unit description

Tasmannia purpurascens

Distribution: Barrington Tops to Ben Halls Gap. Eg. Barrington Tops NP, Gloucester River, Stewarts Brook & Ben Halls Gap SF.

Likely habitat: Wet sclerophyll forest & rainforest.

Additional known habitat details: In tall wet sclerophyll forest, subalpine woodland, & the ecotone between cool temperate rainforest & tall forest, between 1200-1600 metres alt. Sometimes occurs beside swamps or creeks. Recorded growing on chocolate brown kraznozem on basalt.

Tetratheca glandulosa

Distribution: North of Port Jackson. Eg. Mangrove Mountain, Glenorie, Pennant Hills, Duffys Forest, McPherson SF, Yengo NP, Dharug NP, Ku-ring-gai NP.

Likely habitat: Dry woodland.

Additional known habitat details: Associated species include *Angophora bakeri*, *Eucalyptus gummifera*, *E. capitellata*, *Banksia serrata*. On ironstone gravel & shale.

Tetratheca juncea

Distribution: Bulahdelah to Lake Macquarie. Old records from Botany Bay & Port Jackson. Eg. Awabakal NR, Glenrock SRA, Munmorah SRA, Lake Macquarie area, Bulahdelah SF, Walleroo SF, Awaba SF, Heaton SF.

Likely habitat: Heath & open dry sclerophyll forest.

Additional known habitat details: Sandy swampy areas, neutral clay soils, upper parts of ridges, southerly aspect. Associated species include *Angophora costata*, *E. capitellata*, *E. haemostoma*. Seasonal Survey: September to November inclusive, when flowering. No or a few small leaves, difficult to detect when not flowering.

Thesium australe

Distribution: From Cabramurra to Queensland border. Eg. Crowdy Bay NP, Hat Head NP, Kattang NR, Walcha district, Coffs Harbour coastal district, Glen Innes, Tenterfield, Lismore.

Likely habitat: Grassland or woodland.

Additional known habitat details: Wide range of substrates. Associated species include *Themeda triandra*, *Poa sieberiana*, *Eucalyptus rossii*, *E. blakelyi*, *E. mannifera*, *E. pauciflora*. Often in damp sites.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Seasonal Survey: Spring or summer, particularly mid summer as the adult plants are well established and often display a distinctive yellow-green colour.

Tinospora smilacina

Model available

Distribution: North of the Richmond River.

Likely habitat: Dry rainforest.

Additional known habitat details:

Tinospora tinoporoides

Model available

Distribution: North from Iluka. Eg. Johnstone's Scrub NR, Victoria Park NR, Davis Scrub NR, Snobs Gully NR, Minyon Falls FR.

Likely habitat: Wetter subtropical rainforest

Additional known habitat details:

Triplarina imbricata (syn. *Baekia camphorata*)

Distribution: Timmsvale, near Dorrigo and near Drake. Eg. Upper catchment of Little Nymboida and Nymboida Rivers, Plumbago Creek near Drake.

Likely habitat: Rocky riparian low closed scrub.

Additional known habitat details: Associated species include *Tristaniopsis laurina*, *Leptospermum polygalifolium*, *Lomandra longifolia*.

Tylophora linearis

Distribution: Barraba area.

Likely habitat: Dry scrub.

Additional known habitat details:

Tylophora woollsii

Distribution: Clouds Creek area near Dorrigo, Bald Rock near Tenterfield, Boonoo SF, Chaelundi SF.

Likely habitat: Wet sclerophyll forest, often on margins; dry forest near outcrops.

Additional known habitat details: Recorded from brown clay over metasediments in wet sclerophyll forest. Also on granite. Flowers Jan - Feb.

Uromyrtus australis

Distribution: Nightcap Range. Eg. Big Scrub FR, Nightcap NP, Rocky Ck, Whian Whian & Nullum SFs.

Likely habitat: Rainforest & wet sclerophyll forest.

Additional known habitat details: Recorded from warm temperate rainforest on shallow yellow soil over rhyolite in high rainfall areas from 400-770 metres alt. Often associated with *Ceratopetalum apetalum*. Also in warm temperate rainforest/wet sclerophyll forest ecotone.

Velleia perfoliata

Distribution: Upper Hunter Valley, Hawkesbury District, Colo River, Yengo NP, Dharug NP.

Likely habitat: Heath.

Additional known habitat details: On shallow sandy soil on rock platform, on ridges, rarely in sand under and on rock ledges. In association with *Calytrix tetragona*, *Lepidosperma laterale*.

Seasonal Survey: Annual to short-lived, often in seedbank and not extant, flowers all year but mainly peak flowering September-December.

Wahlenbergia scopulicola

Distribution: Mt Lindesay, MacPherson Range.

Likely habitat:

Additional known habitat details: Crevices of rhyolitic outcrops.

Zieria floydii ms

Distribution: Known only from the Guy Fawkes area. Eg. Guy Fawkes River NP.

Likely habitat: Rainforest & dry sclerophyll forest with a possible record from wet sclerophyll forest.

Additional known habitat details: On the fringe of rainforest in hilly country.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Zieria involucrata

Distribution: Blue Mountains, Parr SRA, Yengo NP, Marramarra NP, Marrota SF, Colo Heights, Cornelia Crown Lands (south of Wisemans Ferry).

Likely habitat: Wet sclerophyll forest.

Additional known habitat details: Mid to lower slopes of valleys on Hawkesbury sandstone, shallow sandy soil. 70-320 metres altitude. Steep to gentle slopes. Often associated with *Syncarpia glomulifera*, *Angophora costata*, *Eucalyptus agglomerata*, *Allocasuarina torulosa*, *Ceratopetalum gummiferum*, *Backhousia myrtifolia*, *Acacia linifolia*, *Persoonia linearis*, *P. levis*.

Zieria lasiocaulis

Distribution: North-west of Port Macquarie, at headwaters of the Wilson River (eg. Mount Banda Banda and Marowin Mountain, Mount Boss SF)

High probability habitat: Tall open forest, warm temperate rainforest and cool temperate rainforest.

Additional known habitat details: On red-brown kraznozom soil. rocky escarpments, fringes of *Nothofagus moorei* forest between 750 metres and 1100 metres asl.

***Zieria prostrata* ms**

Distribution: Coffs Harbour area. Eg. Look-at-me-now Headland, Dammerals Head, Diggers Head, Bare Bluff.

Likely habitat: Low heath.

Additional known habitat details: Coastal, on headlands. Metasediments. In association with *Themeda australis*, *Helichrysum bracteatum*, *Hibbertia vestida*, *Banksia integrifolia*.

Schedule 2 Part B: Threatened Plant Metapopulation Unit Descriptions

Species

Amorphospermum whitei

Southern Metapopulation Unit

Distribution: Lower Macleay valley to Coaldale eg, Ingalba SF, Nulla-Five Day SF, Gladstone SF, Newry SF, Pine Creek SF, Orara East and West SFs, Lower Bucca SF, Woolgoolga Creek FR, Punchbowl Creek VCL.

High probability habitat: Warm temperate, subtropical, and littoral rainforest areas, as well as wet sclerophyll forest with rainforest understorey elements.

Additional known habitat details: Recorded on metasediment geology in rainforest patches in moist gullies; wet Tallowood-Blue Gum forest on lower slopes.

Amorphospermum whitei

Northern Metapopulation Unit

Distribution: From Broken Head area to south-eastern Queensland eg, Broken Head NR, Whian Whian SF, Numinbah NR.

High probability habitat: Wet sclerophyll forest with rainforest understorey elements as well as subtropical and littoral rainforest areas.

Additional known habitat details: Recorded on metasediment, acid volcanic and basic igneous geology.

Corokia whiteana

Rhyolite Metapopulation Unit

Distribution: North from Lismore. eg. Big Scrub FR, Nightcap NP, Whian Whian, Nullum SFs,

Likely habitat: Warm temperate rainforest & wet sclerophyll forest.

Additional known habitat details: On poorer soils. Commonly in ecotones between wet sclerophyll forest & coachwood warm temperate rainforest from 10-800 metres alt. on rhyolite.

Corokia whiteana

Metasediment Metapopulation Unit

Distribution: North from Lismore.

Likely habitat: Ecotones between wet sclerophyll and warm-temperate rainforest.

Additional known habitat details: Associated species include *Ceratopetalum apetalum*, *Callicoma serratifolia*.

Corokia whiteana

Coastal Sands Metapopulation Unit

Distribution: North from Byron Bay. E.g. Tyagarah, Yelgun.

Likely habitat: Wet sclerophyll forest.

Additional known habitat details: Brushbox forest with littoral rainforest understorey.

Eucalyptus glaucina

Southern Metapopulation Unit

Distribution: From Broke to Taree eg, Gloucester district, Paterson, Uffington SF.

High probability habitat: Grassy woodland or open forest on coastal lowland areas.

Additional known habitat details: Deep, moderately fertile soils, well watered areas. Recorded in association with *E. moluccana*, *Corymbia maculata*.

Eucalyptus glaucina

Northern Metapopulation Unit

Distribution: Casino district, from Whiporie to Rappville eg. Bungawalbin, Braemar, Myrtle, Carwong SFs, Selection Flat FR.

High probability habitat: Open forest on low relief, low elevation sites.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Additional known habitat details: Deep, moderately fertile soils, well watered areas. Recorded in association with *Corymbia henryi*, *Eucalyptus siderophloia*, *E. crebra*, *E. moluccana*.

Grevillea guthrieana

Carraai Metapopulation Unit

Distribution: From Mt Banda Banda area to the Carrai Plateau

High probability habitat: Open dry forest, woodland or heath on generally rocky sites, especially near cliff edges, and in and adjacent to rocky streamsides.

Additional known habitat details: Recorded on metasediments and granite geology, with *Eucalyptus campanulata*, *E. notabilis*, *E. melliodora*, *E. biturbinata*.

Grevillea guthrieana

Booral Metapopulation Unit

Distribution: Booral Creek area, west of Bulahdelah, eg. Booral Creek, Renwick SF, Alderley Creek.

High probability habitat: Moist eucalypt forest along creeklines, on sandstone-derived loams.

Additional known habitat details: Recorded with *Eucalyptus saligna*, *E. siderophloia*, *Syncarpia glomulifera* amongst an understorey containing *Acacia longifolia*, *Melaleuca nodosa* and *metres. sieberi*.

Hibbertia hexandra

Southern Metapopulation Unit

Distribution: Wauchope district, eg. Landsdowne SF, Mt Boss SF.

High probability habitat: Open eucalypt forest, often in sheltered gullies and on rocky slopes.

Additional known habitat details: Recorded with *Eucalyptus pilularis*, *E. microcorys*, *E. carnea*, *E. agglomerata*, *Ceratopetalum gummiferum*, *Hakea trineura*.

Hibbertia hexandra

Northern Metapopulation Unit

Distribution: North of Lismore, eg. Whian Whian SF.

High probability habitat: Wet eucalypt forest with rainforest understorey, warm temperate rainforest, heath. Often in sheltered gullies and on rocky slopes.

Additional known habitat details: Recorded on rhyolite soils.

Hicksbeachia pinnatifolia

Southern Metapopulation Unit

Distribution: Nambucca Valley to Dorrigo district, eg. Never Never SF, Dorrigo NP.

High probability habitat: Rainforest and moist open eucalypt forest, often lower slopes near watercourses.

Additional known habitat details:

Hicksbeachia pinnatifolia

Northern Metapopulation Unit

Distribution: North of Lismore, eg. Whian Whian SF, Nullum SF, Mooball SF.

High probability habitat: Rainforest, wet eucalypt forest with rainforest understorey.

Additional known habitat details: Recorded on basalt-derived soils in association with *Lophostemon confertus*, *Eucalyptus grandis*, *E. microcorys*, *Ceratopetalum apetalum*, *Schizomeria ovata*, *Flindersia schottiana*, *Heritiera trifoliolata*, *Geissois benthamii*.

Pultenaea campbelli

Southern Metapopulation Unit

Distribution: From Glenrock (Bralga Tops) to Oxley Wild Rivers NP (Tabletop Mtn area). including: Hanging Rock, Nundle SF, Tomalla SF, Tuggolo SF, Walcha district.

Likely habitat: Dry sclerophyll forest.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 2

Additional known habitat details: Recorded on light gravelly soil above 600 metres alt; also on rocky sites, recorded with *Eucalyptus blakelyi*, *E. laevopinea*, *E. melliodora*, *E. campanulata*, *E. caliginosa*, *E. bridgesiana*.

Pultenaea campbellii

Northern Metapopulation Unit

Distribution: Enmore area (Mihi Gorge) to Tenterfield including: Tilbuster, Devils Pinch, Parlour Mtns, Guyra district, Backwater, Mann River NR.

Likely habitat: Dry sclerophyll forest, woodland or heath; on stony or sandy substrates.

Additional known habitat details: Recorded with *Eucalyptus blakelyi*, *E. laevopinea*, *E. melliodora*, *Eucalyptus campanulata*, *E. caliginosa*, *E. bridgesiana*.

Rutidosis heterogama

Inland Metapopulation Unit

Distribution: Torrington area.

High probability habitat: Heath, open forest and woodland.

Additional known habitat details: On leuco-granitic geology.

Rutidosis heterogama

Coastal Metapopulation Unit

Distribution: Coastal areas from Wooli to Evans Head, eg. Sandon, Brooms Head, Bundjalung NP.

High probability habitat: Heath, open forest and woodland.

Additional known habitat details: In grassland, heath, open forest and woodland on clays. Recorded along roadsides.

Tasmannia glaucifolia

Southern Metapopulation Unit

Distribution: Barrington Tops area and Ben Halls Gap.

High probability habitat: Riparian vegetation, usually on basalt soils above c. 1200 metres altitude.

Additional known habitat details: Recorded from *Nothofagus moorei*-*Elaeocarpus holopetalus* communities as well as *Leptospermum flavescens*-*Acacia melanoxylon* scrub.

Tasmannia glaucifolia

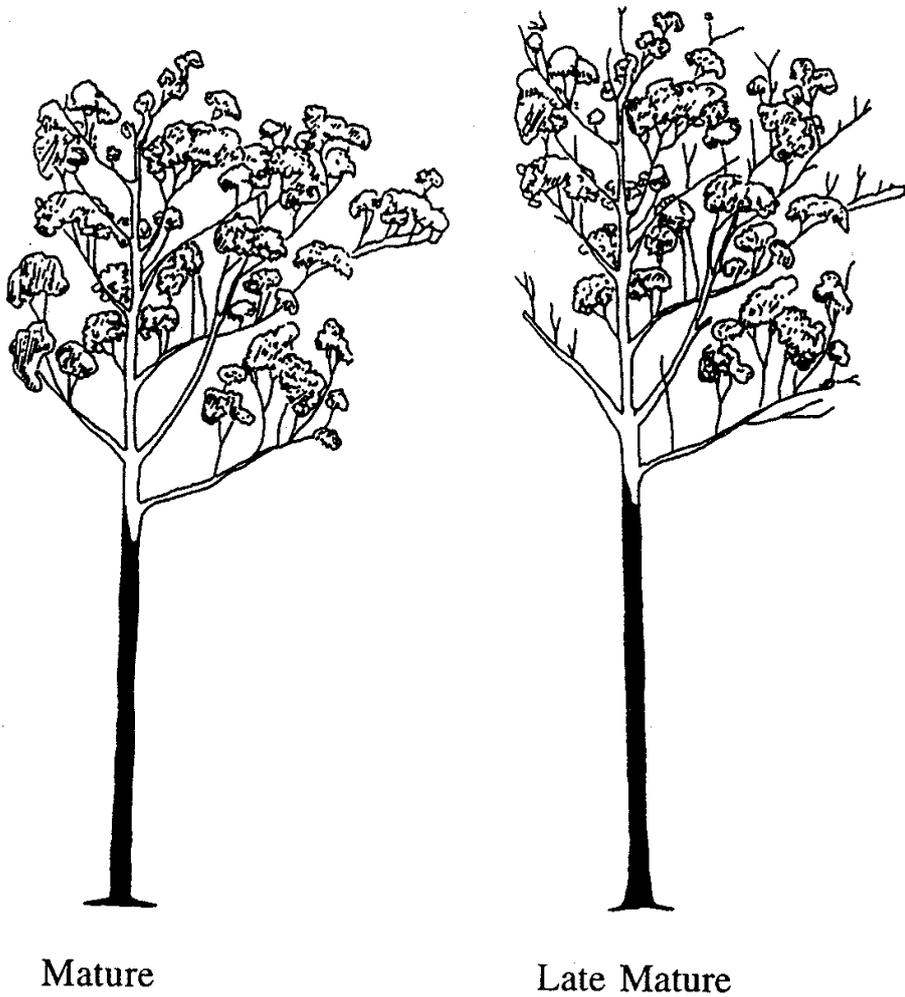
Northern Metapopulation Unit

Distribution: Ebor-Point Lookout area, New England NP.

High probability habitat: Riparian vegetation, usually on basalt soils. In and on margins of cool temperate rainforest above 1200 metres altitude.

Additional known habitat details: Recorded on chocolate soil on basalt, along drainage channels.

SCHEDULE 3: Figure S3.1 Diagrammatic representation of mature and late mature growth stages



SCHEDULE 4: Threatened fauna potential habitat descriptions

Species	Schedule
<p>Fleay's Frog <i>Mixophyes fleayi</i></p> <p><u>Distribution</u>: eg. Mid to high elevations from the Conondale Range in south-east Queensland to the Upper Richmond River, Nightcap and Border Ranges. Also found at Terania Creek.</p> <p><u>Macrohabitat</u>: Rainforest and wet sclerophyll forest, with moist leaf litter, usually close to permanent running water.</p> <p><u>Microhabitat</u>: Usually calls on, or under, the leaf litter along streambanks. Disperses along forest floor during moist conditions and may be found some distance from permanent water, eg. ridge tops.</p>	2
<p>New England Swamp Frog <i>Litoria castanea</i></p> <p><u>Distribution</u>: The upper reaches of the Clarence, Macleay and Gwydir valleys.</p> <p><u>Macrohabitat</u>: Permanent ponds, dams, still backwaters of rivers, wetlands, slowly moving streams, lagoons in woodlands and improved pastures. Typically where beds of tall reeds occur, but also overhanging grassy banks where reeds are absent.</p> <p><u>Microhabitat</u>: Overwinters and shelters under ground debris and fallen timber. Calls while floating in the water; basks in sun. Found on reeds. Breeds typically in warmer months, after reasonable rain.</p>	1
<p>Peppered Frog <i>Litoria piperata</i></p> <p><u>Distribution</u>: mid to high elevations (800-1000 metres) in the headwaters of streams flowing east from the New England Tablelands, in an area extending from south east of Armidale to west of the Gibraltar Range.</p> <p><u>Macrohabitat</u>: Fast flowing streams in lightly forested, dry New England eucalypt forest.</p> <p><u>Microhabitat</u>: Exposed rocky beds and ledges; streamside vegetation usually includes Ribbon Grass, <i>Lomandra</i>, <i>Leptospermum</i> and <i>Casuarina</i>.</p>	2
<p>Black-throated Finch <i>Poephila cincta</i></p> <p><u>Distribution</u>: Far northern inland NSW on the north-west slopes and plains.</p> <p><u>Macrohabitat</u>: Woodland savannah, open forested grasslands and riparian vegetation.</p> <p><u>Microhabitat</u>: Sparse eucalypt or paperbark canopy.</p>	1

SCHEDULE 5: Species' consideration

AMENDMENT 5
1 March 2013
Schedule 5 – Table
1 modified

Table 1: Threatened fauna species considered adequately protected by the General conditions.

Fauna group / Common name	Scientific name
Frogs	
(alphabetic by scientific name)	
Pouched Frog	<i>Assa darlingtoni</i> (except in the Dorriggo MA)
Wallum Froglet	<i>Crinia tinnula</i>
Olongburra Frog	<i>Litoria olongburensis</i>
Davies' Tree Frog	<i>Litoria daviesae</i>
Glandular Frog	<i>Litoria subglandulosa</i>
Red-crowned Toadlet	<i>Pseudophyrne australis</i>
Reptiles	
(alphabetic by scientific name)	
White-crowned Snake	<i>Cacophis harriettae</i>
Three-toed Snake-toothed Skink	<i>Coeranoscincus reticulatus</i>
Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>
Broad-headed Snake	<i>Hoplocephalus bungaroides</i>
Border Thick-tailed Gecko	<i>Underwoodisaurus sphyrurus</i>
Rosenberg's Goanna	<i>Varanus rosenbergi</i>
Birds	
(alphabetic by common name)	
Australasian Bittern	<i>Botaurus poiciloptilus</i>
Barred Cuckoo-shrike	<i>Coracina lineata</i>
Black Bittern	<i>Ixobrychus flavicollis</i>
* Bush Stone-Curlew	<i>Burhinus grallarius</i>
Bush-Hen	<i>Amauornis olivaceus</i>
Collared Kingfisher	<i>Todiramphus chloris</i>
Comb-crested Jacana	<i>Irediparra gallinacea</i>
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>
Mangrove Honeyeater	<i>Lichenostomus fasciolaris</i>
Olive Whistler	<i>Pachycephala olivacea</i>
Osprey	<i>Pandion haliaetus</i>
Rose-crowned Fruit-dove	<i>Ptilinopus regina</i>
Sooty Owl	<i>Tyto tenebricosa</i>
Square-tailed Kite	<i>Lophoictinia isura</i>
Superb Fruit-dove	<i>Ptilinopus superbus</i>
Turquoise Parrot	<i>Neophema pulchella</i>
White-eared Monarch	<i>Monarcha leucotis</i>
Wompoo Fruit-dove	<i>Ptilinopus magnificus</i>
Non-flying mammals	
(alphabetic by common name)	
Brush-tailed Rock Wallaby	<i>Petrogale penicillata</i>
Common Planigale	<i>Planigale maculata</i>
Eastern Chestnut Mouse	<i>Pseudomys gracilicaudatus</i>
Long-nosed Potoroo	<i>Potorous tridactylus</i>
Parma Wallaby	<i>Macropus parma</i>
Red-legged Pademelon	<i>Thylogale stigmatica</i>
Rufous Bettong	<i>Aepyprymnus rufescens</i>

APPENDIX B – LOWER NORTH EAST: SCHEDULE 5

Fauna group / Common name	Scientific name
Flying mammals	
(alphabetic by scientific name)	
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>
Hoary Wattled Bat	<i>Chalinolobus nigrogriseus</i>
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>
Little Bentwing-bat ¹	<i>Miniopterus australis</i>
Common Bentwing-bat ¹	<i>Miniopterus schreibersii</i>
Beccari's Freetail-bat	<i>Mormopterus beccarii</i>
Eastern Freetail-bat	<i>Mormopterus norfolkensis</i>
Large-footed Myotis	<i>Myotis adversus</i>
Eastern Tube-nosed Bat	<i>Nyctimene robinsoni</i>
Eastern Long-eared Bat	<i>Nyctophilus bifax</i>
Greater Long-eared Bat	<i>Nyctophilus timoriensis</i>
Black Flying-fox	<i>Pteropus alecto</i>
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>
Eastern Cave Bat	<i>Vespadelus trougtoni</i>
Insects	
(alphabetic by scientific name)	
Australian Fritillary (Butterfly)	<i>Argyreus hyperbius</i>
Atlas Rainforest Ground-beetle	<i>Nurus atlas</i>
Shorter Rainforest Ground-beetle	<i>Nurua brevis</i>
Pink Underwing Moth	<i>Phyllodes imperialis- southern subspecies</i>

* Designates TSC Act Schedule 1 species.

¹ Maternity caves of these species are dealt with under **condition 5.2 of this licence**

APPENDIX B – LOWER NORTH EAST: SCHEDULE 5

AMENDMENT 5
1 March 2013
Schedule 5 – Table
2 modified

Table 2: Threatened fauna species which require the implementation of Species-specific conditions:

Fauna group / Common name	Scientific name
Frogs	
(alphabetic by scientific name)	
Pouched Frog	<i>Assa darlingtoni</i> (in Dorrigo MA only)
Giant Burrowing Frog	<i>Heleioporus australiacus</i>
* Green and Golden Bell Frog	<i>Litoria aurea</i>
Green-thighed Frog	<i>Litoria brevipalmata</i>
Littlejohn's Tree Frog	<i>Litoria littlejohni</i>
Stuttering Frog	<i>Mixophyes balbus</i>
Fleay's Frog	<i>Mixophyes fleayi</i>
Giant Barred Frog	<i>Mixophyes iteratus</i>
Mountain Frog	<i>Phyllorhina kundagungan</i>
Loveridge's Frog	<i>Phyllorhina loveridgei</i>
Sphagnum Frog	<i>Phyllorhina sphagnicolus</i>
Reptiles	
(alphabetic by scientific name)	
Stephens' Banded Snake	<i>Holocephalus stephensii</i>
Birds	
(alphabetic by common name)	
Albert's Lyrebird	<i>Menura alberti</i>
Barking Owl	<i>Ninox connivens</i>
Black-chinned Honeyeater (eastern sub-species)	<i>Meliphaga gularis gularis</i>
Marbled Frogmouth	<i>Podargus ocellatus</i>
Masked Owl	<i>Tyto novaehollandiae</i>
Powerful Owl	<i>Ninox strenua</i>
* Regent Honeyeater	<i>Xanthomyza phrygia</i>
Rufous Scrub-bird	<i>Atrichornis rufescens</i>
Swift Parrot	<i>Lathamus discolor</i>
Non-flying mammals	
(alphabetic by common name)	
Broad-toothed Rat	<i>Mastacomys fuscus</i>
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>
* Hastings River Mouse	<i>Pseudomys oralis</i>
Koala	<i>Phascolarctos cinereus</i>
Squirrel Glider	<i>Petaurus norfolcensis</i>
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>
Yellow-bellied Glider	<i>Petaurus australis</i>
Flying mammals	
(alphabetic by scientific name)	
Golden-tipped Bat	<i>Kerivoula papuensis</i>
Common Blossom-bat	<i>Syconycteris australis</i>

* designates TSC Act Schedule 1 species

Common and scientific names used are those in the *Threatened Species Conservation Act 1995*, Schedules 1 and 2.

APPENDIX B – LOWER NORTH EAST: SCHEDULE 5

Table 3: Threatened flora species which require the implementation of Species-specific conditions. These species occur, or are likely to occur in SFNSW estate and may be affected by forestry operations.

<i>Acacia bynoeana</i>	* <i>Hibbertia procumbens</i>
<i>Acacia courtii</i>	<i>Hicksbeachia pinnatifolia</i> – Northern and Southern Metapopulation Units
<i>Acacia pubescens</i>	<i>Leptospermum deanei</i>
* <i>Acacia ruppii</i>	* <i>Leucopogon confertus</i>
* <i>Allocasuarina defungens</i>	* <i>Lindsaea brachypoda</i>
<i>Amorphospermum whitei</i> –Southern Metapopulation Unit	* <i>Lindsaea fraseri</i>
<i>Angophora inopina</i>	* <i>Lindsaea incisa</i>
<i>Angophora robur</i>	
<i>Asperula asthenes</i>	<i>Macrozamia johnsonii</i> (syn. <i>M. moorei</i>)
* <i>Asterolasia elegans</i>	* <i>Marsdenia longiloba</i>
<i>Boronia umbellata</i>	<i>Melaleuca biconvexa</i>
	* <i>Melaleuca tamariscina</i> ssp. <i>irbyana</i>
	<i>Melichrus hirsutus</i> (syn. <i>M. sp. A</i>)
	* <i>Melichrus sp. Gibberagee</i>
<i>Bothriochloa biloba</i>	<i>Olearia cordata</i>
* <i>Callitris baileyi</i>	* <i>Olearia flocktoniae</i>
<i>Callitris oblonga</i>	<i>Parsonsia dorrigoensis</i>
* <i>Calophanoides hygrophiloides</i>	* <i>Phebalium glandulosum</i> subsp. <i>eglandulosum</i>
* <i>Corchorus cunninghamii</i>	* <i>Plectranthus nitidus</i>
<i>Corokia whiteana</i> - Metasediments Metapopulation	
<i>Cryptostylis hunteriana</i>	* <i>Polygala linariifolia</i>
* <i>Cynanchum elegans</i>	<i>Pomaderris brunnea</i>
* <i>Cyperus aquatilis</i>	* <i>Pomaderris queenslandica</i>
* <i>Dendrocnide moroides</i>	<i>Prostanthera askania</i> (syn. <i>P. sp. 6</i> Strickland State Forest)
	<i>Prostanthera densa</i>
* <i>Desmodium acanthocladum</i>	* <i>Prostanthera sp. Somersby</i> (syn. <i>P. sp. 6 junonis</i>)
<i>Dichanthium setosum</i>	<i>Pterostylis cucullata</i> (syn. <i>P. sp. D</i> ; <i>P. sp. aff. cucullata</i>)
* <i>Diuris disposita</i>	* <i>Pterostylis gibbosa</i>
* <i>Diuris pedunculata</i>	<i>Pterostylis nigricans</i>
* <i>Drynaria rigidula</i>	
* <i>Elaeocarpus sp. Rocky Creek</i> (syn. <i>E. sp. Minyon</i>)	<i>Pultenaea campbellii</i> – Northern and Southern Metapopulation Units
* <i>Eucalyptus fracta</i>	<i>Pultenaea stuartiana</i>
<i>Eucalyptus glaucina</i> – Northern and Southern Metapopulation Units	* <i>Quassia sp. Moonee Creek</i> (syn. <i>Q. sp. B</i>)
<i>Eucalyptus mckieana</i>	<i>Rutidosis heterogama</i> – Inland Metapopulation Unit
<i>Eucalyptus rubida</i> subsp. <i>barbigerorum</i>	* <i>Senna acclinis</i>
<i>Eucalyptus tetrapleura</i>	<i>Sophora fraseri</i>
<i>Goodenia macbarronii</i>	<i>Styphelia perileuca</i>
<i>Grevillea parviflora</i> ssp. <i>parviflora</i>	<i>Tasmannia glaucifolia</i> – Southern Metapopulation Unit
<i>Grevillea banyabba</i>	<i>Tasmannia purpurascens</i>
* <i>Grevillea guthrieana</i> - Booral and Carrai Metapopulations	<i>Tetratheca glandulosa</i>
* <i>Grevillea masonii</i>	<i>Tetratheca juncea</i>
* <i>Grevillea obtusiflora</i>	* <i>Tinospora smilacina</i>
<i>Grevillea quadricauda</i>	* <i>Triplarina imbricata</i>
<i>Grevillea rhizomatosa</i>	* <i>Tylophora linearis</i>
<i>Grevillea scortechinii</i> subsp. <i>sarmentosa</i>	* <i>Tylophora woollsii</i>
<i>Goodenia macbarronii</i>	
<i>Hakea fraseri</i>	

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<i>Hakea trineura</i> (syn. <i>H. sp. aff. trineura</i>)	* <i>Uromyrtus australis</i>
* <i>Hedyotis galioides</i>	<i>Zieria involucreta</i>
* <i>Hibbertia hexandra</i> – Northern and Southern Metapopulation Units	* <i>Zieria lasiocaulis</i>
<i>Hibbertia marginata</i>	

* designates TSC Schedules 1 species

Table 4: Threatened flora species which require the implementation of Species-specific conditions. These species are either not currently known from SFNSW estate or are only known from non-production areas (eg. flora reserves).

* <i>Acacia acrionastes</i>	* <i>Fontainea oraria</i>
<i>Acacia flocktoniae</i>	<i>Gaultheria viridicarpa</i> subsp. <i>merinoensis</i>
* <i>Acacia macnutiana</i>	<i>Gaultheria viridicarpa</i> subsp. <i>viridicarpa</i>
* <i>Acacia pubifolia</i>	* <i>Geijera paniculata</i>
<i>Acacia pycnostachya</i>	<i>Gentiana wissmannii</i>
* <i>Acalypha eremorum</i>	* <i>Gingidia montana</i>
* <i>Acronychia littoralis</i>	* <i>Grammitis stenophylla</i>
* <i>Aldrovanda vesiculosa</i>	* <i>Grevillea beadleana</i>
<i>Allocasuarina simulans</i>	<i>Grevillea evansiana</i>
* <i>Almaleea cambagei</i>	* <i>Grevillea mollis</i>
<i>Amorphospermum whitei</i> Northern Metapopulation Unit	<i>Grevillea shiressii</i>
* <i>Amyema scandens</i>	<i>Haloragis exalata</i> subsp. <i>exalata</i>
* <i>Angiopteris evecta</i>	<i>Haloragis exalata</i> subsp. <i>velutina</i>
* <i>Angophora exul</i>	<i>Homoranthus lunatus</i>
* <i>Apatophyllum constablei</i>	<i>Homoranthus prolixus</i>
<i>Arthraxon hispidus</i>	* <i>Hypolepis elegans</i>
* <i>Arthropteris palisotii</i>	* <i>Isoglossa eranthemoides</i>
* <i>Austromyrtus fragrantissima</i>	* <i>Knoxia sumatrensis</i>
<i>Baeckea</i> sp. Pyramids (syn. <i>Babingtonia granitica</i> ?)	* <i>Kunzea rupestris</i>
<i>Baloghia marmorata</i>	<i>Lasiopetalum longistamineum</i>
* <i>Bertya ingramii</i>	* <i>Lepidium hyssopifolium</i>
<i>Bertya</i> sp. A Cobar-Coolabah	* <i>Lepidium peregrinum</i>
* <i>Blumea lacera</i>	<i>Macadamia tetraphylla</i>
* <i>Boronia granitica</i>	<i>Melaleuca groveana</i>
<i>Bosistoa selwynii</i>	* <i>Micromelum minutum</i>
<i>Bosistoa transversa</i>	* <i>Monotaxis macrophylla</i>
<i>Bulbophyllum globuliforme</i>	* <i>Muellerina myrtifolia</i>
<i>Cadellia pentastylis</i>	<i>Myriophyllum implicatum</i>
* <i>Caesia parviflora</i> var. <i>minor</i>	<i>Neoastelia spectabilis</i>
* <i>Choricarpia subargentea</i>	* <i>Ochrosia moorei</i>
<i>Clematis fawcettii</i>	<i>Olax angulata</i>
<i>Corokia whiteana</i> Rhyolite, Metasediments and Coastal Sands Metapopulations	<i>Owenia cepiodora</i>
<i>Corynocarpus rupestris</i> subsp. <i>rupestris</i>	<i>Persicaria elatior</i>
<i>Cryptocarya foetida</i>	* <i>Phaius australis</i>
<i>Darwinia biflora</i>	* <i>Phaius tankervilleae</i>
* <i>Davidsonia pruriens</i> var. <i>jerseyana</i>	<i>Picris evae</i>
* <i>Davidsonia</i> sp. Mullumbimby Currumbin Creek	<i>Pimelea venosa</i>
* <i>Diospyros mabacea</i>	* <i>Plectranthus alloplectus</i>
* <i>Diospyros major</i> var. <i>ebenus</i>	<i>Prostanthera</i> sp. Bundjalung (syn. <i>P. palustris</i>)
* <i>Diploglottis campbellii</i>	<i>Prostanthera staurophylla</i>
<i>Diuris praecox</i>	* <i>Pseudanthus ovalifolius</i>
<i>Diuris venosa</i>	* <i>Psilotum complanatum</i>

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* <i>Elaeocarpus williamsianus</i>	* <i>Randia moorei</i>
* <i>Eleocharis tetraquetra</i>	* <i>Rapanea</i> sp. A Richmond River
* <i>Endiandra floydii</i>	<i>Rutidosia heterogama</i> – Coastal Metapopulation
<i>Endiandra hayesii</i>	<i>Sarcochilus fitzgeraldii</i>
<i>Endiandra muelleri</i> subsp. <i>bracteata</i>	<i>Sarcochilus hartmannii</i>
<i>Eriostemon ericifolius</i>	<i>Sarcochilus weinthalii</i>
* <i>Eucalyptus approximans</i>	<i>Sauropus albiflorus</i> subsp. <i>microcladus</i> (syn <i>Phyllanthus microcladus</i>)
<i>Eucalyptus caleyi</i> subsp. <i>ovendenii</i>	<i>Symplocos baeuerlenii</i>
<i>Eucalyptus camfieldii</i>	<i>Syzygium hodgkinsoniae</i>
* <i>Eucalyptus camphora</i> subsp. <i>relicta</i>	<i>Syzygium moorei</i>
<i>Eucalyptus nicholii</i>	<i>Syzygium paniculatum</i>
* <i>Eucalyptus pachycalyx</i> subsp. <i>banyabba</i>	* <i>Tarenna cameronii</i>
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	<i>Tasmannia glaucifolia</i> – Northern Metapopulation Unit
<i>Eucalyptus pumila</i>	<i>Thesium australe</i>
* <i>Euphrasia arguta</i>	<i>Tinospora tinosporoides</i>
<i>Euphrasia bella</i>	* <i>Velleia perfoliata</i>
* <i>Euphrasia collina</i> subsp. <i>muelleri</i>	* <i>Wahlenbergia scopulicola</i>
* <i>Euphrasia</i> sp. Tamworth (syn. <i>E. ruptura</i>)	* <i>Zieria floydii</i>
<i>Floydia praealta</i>	* <i>Zieria prostrata</i>
<i>Fontainea australis</i>	

* designates TSC Schedules 1 species

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Table 5: Protected fauna requiring Species-specific conditions.

<i>all raptors</i>	<i>Rhinolophus megaphyllus</i>
<i>Drysdalia coronoides</i>	<i>Vespadelus pumilus</i>
<i>Lampropholis caligula (LNE only)</i>	<i>Wombat</i>

Table 6: Protected native plants requiring Species-specific conditions.

<i>Cymbidium canaliculatum</i>	<i>Eriostemon myoporoides</i> ssp. <i>conduplicatus</i>
<i>Dipodium atropurpureum</i>	<i>Gastrodia sesamoides</i>
<i>Dipodium pulchellum</i>	<i>Oberonia titania</i>
<i>Doryanthes palmeri</i>	

* designates TSC Schedules 1 species

AMENDMENT 2
23 April 2003
Schedule 6 (incl
heading) replaced
Ref Appendix E

SCHEDULE 6: Matters to be addressed in assessment of proposals for new roading through High Conservation Value Old Growth Forest, Rainforest, Rare Non-commercial Forest Types and protection zones.

When applying to construct new roads or snig tracks through High Conservation Value Old Growth Forest, Rainforest, Rare Non-Commercial Forest Types and protection zones, SFNSW must provide NPWS with a report addressing the following:

- (a) All options that were considered, the cost of all options, the reasons why the selected route was chosen and why the other routes were not considered feasible;
- (b) The specific reasons why the road or snig track must be established;
- (c) The mitigative and ameliorative measures to be applied; and
- (d) Results of the field assessment which must be undertaken and must include:
 - i. A description of the proposed road or snig track, including dimensions of area to be affected (road footprint, run-offs etc), method of construction including any cutting and filling that may be involved, and construction of any stream crossings.
 - ii. An assessment and description of any threatened flora that will or is likely to be directly or indirectly affected by construction, or occurs within 50 metres of the construction area.
 - iii. An assessment and description of any threatened fauna that
 1. will be or is likely to be directly or indirectly affected by construction,

OR

 2. occurs within 100 metres of the construction area.
 - iv. An assessment and description of the likelihood of the road to create a barrier to movement of threatened fauna, or is otherwise likely to increase the threats to threatened fauna.
 - v. An assessment of any habitat features that will or are likely to be directly or indirectly affected by the construction, including but not confined to: wetlands or other waterbodies; and threatened species habitat.
 - vi. An assessment and description of the area affected including, but not confined to:
 1. the type of High Conservation Value Old Growth Forest or Rainforest or Rare Non-Commercial Forest Types or protection zone (according to RN17);
 2. a brief description of the floristics and structure of the High Conservation Value Old Growth Forest or Rainforest or Rare Non-Commercial Forest Types or protection zone;
 3. a description of the total area of the High Conservation Value Old Growth Forest or Rainforest or Rare Non-Commercial Forest Types or protection zone to be directly and indirectly affected;
 4. the likelihood of the road to fragment the High Conservation Value Old Growth Forest or Rainforest or Rare Non-Commercial Forest Types or protection zone patch; and
 5. whether the rainforest is SEPP 26 littoral rainforest.
 - vii. An assessment of the likelihood of the construction increasing the presence or abundance of weeds or feral animals.
 - viii. An assessment of past disturbance in the proposed construction area.

SCHEDULE 7: Draft Feral and Introduced Predator Control Plan

Background and Summary

Feral and introduced animal management is a major issue for all Land Managers. Feral animals cause damage to the environment in a variety of ways. Fox predation has been formally listed as a Key Threatening Process under both Commonwealth and State legislation. There are legislative requirements to control noxious animals under State regulations. There is a wide perception in the scientific and general community that feral animals are a major threat to native wildlife.

This plan was developed in consultation with CSIRO (Peter Catling) and an expert in management of fauna at potential risk from control activity (Chris Belcher). Practicality, economics, transparency and accountability were considered in the process of developing a two-stage approach to feral animal management.

The first stage involves monitoring and control of feral animals in the context of harvest operations and the Wildlife Management Code of Practice. It makes use of a cost-effective method (using soil plots to record tracks) to monitor feral animals. When unacceptably high levels of ferals are recorded, control measures will be put in place. The second stage will be the development of a landscape approach to feral management, in conjunction with other agencies and landholders. This is used to great effect in some areas and is the preferable most practical and effective means of managing vertebrate pests.

State-wide Strategic Approach

Methods

Monitoring Predators

Soil plots, as described by Catling and Burt (1996) will be used to detect the presence of feral predators. These are strips of soft soil or sand placed across minor roads. The strips are one metre wide and run from road edge to road edge. Soil plots detect the presence of feral predators (and other animals, notably Critical Weight Range Vertebrates) through the footprints left when animals cross them. Each soil plot is visited in the early morning to achieve best results when the sun is low on the horizon and emphasises the shape of footprints with clear shadows.

At least 20 soil plots will be established in each Landscape Management Unit targeted and these will be checked daily for three days.

Controlling Predators

Bait mounding will be the primary control method used. Earth mounds approximately 40 centimetres in height are constructed and meat baits placed approximately 20 centimetres below the surface of the mounds. Mounds are monitored for take, and those visited by target species (Cats, Foxes and Dogs) are activated with 1080 poison baits.

Where the presence of native carnivores is indicated at the mounds, alternative methods of control will be employed. Soft jawed spring traps are a preferred alternative. In some instances, "Call-up and Shoot" techniques can be utilised effectively.

Landscape Stratification

Each management area will be stratified into Landscapes Management Units (LMU). There is precedent for this in the South-east Region feral management program, and in the management of Owl Habitat under the Wildlife Management Code of Practice. The development of landscape management units is described in Part B Section 3.1.2 of the Survey Design. The location of soil plots for monitoring will be determined by the plan of operations, to target recent harvesting operations, and by the results of wildlife survey and database searches, to target key threatened species locations.

Action Sequence:

Yearly Plan on SFNSW estate

1. Winter-Spring Year 1

Review Threatened Species Surveys, Data base, and Plan of Operation

Nominate Landscape Management Units for action

Place Soil Plots

Record Predator levels, CWR levels

2. Winter-Spring Year 2

Place Soil Plots

Record Predator levels, CWR levels

3. Analyse data for Predator Abundance.

If no increase or decrease, stop.

If increased levels of PA, go to 4.

4. Check Threatened Species locations and Private Property interface

If no Threatened Species, justify stop or go to 5.

If the Private Property interface is the epicentre of increase abundance, go to section II.

5. If there are threatened species present, check which Predator Species have increased.

If the predators are dogs, justify actions according to dog/dingo relationship – that is, if the predators are natural populations of wild dingoes, stop. If there are “unnaturally high levels” of dingoes, or the predators are feral dogs.

6. Institute mound baiting. If takes are quolls go to 8.

If takes are target predators, go to 7.

7. Arm mounds with 1080. Follow monitoring plan in subsequent years for both predators and CWR target species to determine efficacy.

8. If takes are quolls, determine alternative strategy – traps, shooting, stop action to maintain quolls.

Yearly Plan: All tenures.

1. Contact Neighbouring Agencies and Property Owners

2. Determine actions already underway.

3. Set up inter-agency working body according to Regional needs

4. Report results of SFNSW monitoring and control actions.

5. Negotiate, support and monitor control actions outside SFNSW tenure.

By following these decision rules for action, an effective monitor and control program can be put in place. If it is not effective, the reasons (including no action by other agencies and neighbours) for this are transparent.

SCHEDULE 8: Worked example of the large forest owl Landscape Approach

Step 1. Delineate a Planning Area of approximately 10,000 hectares +/- 50% (ie. 5,000 to 15,000).

A Planning Area of 10,000 hectares has been delineated.

Step 2. An exclusion zone encompassing a minimum of 25% of the Planning Area must be implemented using the following rules.

Based on a 10,000 hectare planning area, an exclusion zone of 2,500 hectares must be implemented.

Step 3: Of the retained 25% of the Planning Area:

- 45% (or 11.25% of the Planning Area) must be Powerful Owl habitat,
- 45% (or 11.25% of the Planning Area) must be Masked Owl habitat, and
- 10% (or 2.5% of the Planning Area) must be Barking Owl habitat.

Where there are no Barking Owl records or modelled habitat in the Planning Area, 50% must be Powerful Owl habitat and 50% must be Masked Owl habitat.

Of the retained 2,500 hectares:

1,125 hectares must be Powerful Owl habitat,

1,125 hectares must be Masked Owl habitat, and

250 hectares must be Barking Owl habitat.

Step 4: Exclusion zones for each species must be selected on the basis of the proportion of each modelled habitat class for each species occurring in the Planning Area (this excludes areas not identified as modelled habitat).

Owl species	CRA modelled habitat class	Area of CRA modelled habitat in Planning Area	Proportion of each habitat class to be in exclusion zone	Area of each habitat class to be in exclusion zone
Powerful Owl	class 1	2,000 ha	22% ¹	247 ha ²
	class 2	4,000 ha	44%	495 ha
	class 3	3,000 ha	34%	382 ha
	total	9,000 ha		
Masked Owl	class 1	2,000 ha	31%	349 ha
	class 2	3,000 ha	46%	517 ha
	class 3	1,500 ha	23%	259 ha
	total	6,500 ha		
Barking Owl	class 1	500 ha	50%	125 ha
	class 2	500 ha	50%	125 ha
	total	1,000 ha		

¹ 2,000 / 9,000 x 100 = 22

² 0.22 x 1,125 = 247

APPENDIX B – LOWER NORTH EAST: SCHEDULE 8

Step 5: Of the exclusion zone determined in Step 2 above (2,500 ha), a minimum of 30% must be retained as exclusion areas in areas of SFNSW estate outside statutory reserves. Where existing statutory reserves comprise 25% or more of the planning unit area, then the minimum area of SFNSW estate outside of statutory reserves to be retained in exclusion zones is 10%.

Based on a 10,000 ha planning unit, of the 2,500 ha exclusion zone, 750 ha must be in SFNSW estate outside of statutory reserves; OR

Where existing statutory reserves comprise 25% or more of the planning unit area, then of the 2,500 ha exclusion zone, 250 ha must be in SFNSW estate outside of statutory reserve.

Step 6: Of the area of retained SFNSW estate outside of statutory reserves, a minimum of 30% must be retained in patches greater than 50 ha.

Based on a 10,000 ha planning unit, of the 750 ha of retained SFNSW estate outside of statutory reserves, 225 ha must be in patches greater than 50 ha; OR

Where existing statutory reserves comprise 25% or more of the planning unit area, then of the 250 ha of retained SFNSW estate outside of statutory reserves, 75 ha must be in a patch greater than 50ha.

SCHEDULE 9: Definition of Rufous Scrub-bird microhabitat

The delineation of Rufous Scrub-bird habitat is a two step process:

Step 1: At the pre-planning stage, identify areas of Rufous Scrub-bird modelled habitat classes 1, 2 and 3.

Step 2: In the field, within areas of modelled habitat search for areas of microhabitat, defined as follows:

a) Rufous Scrub-bird micro-habitat is defined as areas of rainforest and wet sclerophyll forest (eg. forest types 47 and 53) within 500 metres of rainforest. These are areas of one hectare or greater which contain extremely dense cover between two and 50 centimetres above the ground, and moderate cover between 50 and 100 centimetres above the ground. The cover may consist of living or non living plant material, or both. These areas generally have a moist ground level microclimate and abundant leaf litter.

b) In areas where there is no rainforest, Rufous Scrub-bird microhabitat is defined as areas within wet sclerophyll forest that are one hectare or greater which contain extremely dense cover between two and 50 centimetres above the ground, and moderate cover between 50 and 100 centimetres above the ground. The cover may consist of living or non living plant material, or both. These areas generally have a moist ground level microclimate and abundant leaf litter.

SCHEDULE 10: Hastings River Mouse Microhabitat model

Microhabitat model (after Smith and Quin 1997). Model 1 additive model. Model 2 substitutional model.

HASTINGS RIVER MOUSE MICROHABITAT PREDICTION

	LOW	MOD.	HIGH
SCORE	0	1	2

Sedge/rush/grass/fern cover (GSRC):	<10%	>9%<30%	>30%
SCORE:			

Shelter Index (SI):	<17	>16	rock scarp
SCORE:			Present

Vegetation Cover 10 to 75 cm (VC):	<2.6 contacts	>2.5 contacts
SCORE:		

Heath Cover (HC)	Absent	present
SCORE:		

Model 1	TOTAL SCORE:	0,1	2,3,4	5,6
	HABITAT SUITABILITY:	Unsuitable	moderate	high

Model 2	
UNSUITABLE HABITAT:	1. GSRC score = zero, or 2. GSRC score = 1 or 2 and SI score = 0, and VC score <2.6 and HC score = 0
HIGH QUALITY HABITAT	1. GSRC score = 2, and SI score = 1 or 2, and VC >2.5
MODERATE HABITAT	all other possible combinations in which GSRC score = 1 or more, and SI or VC or HC score = 1 or more



HASTINGS RIVER MOUSE

RAPID HABITAT ASSESSMENT DATA SHEET

M.A.	CPT.	STATE FOREST	
OBSERVER(S)			DATE
BROAD VEG TYPE(S)	Rainforest	Sclerophyll	Woodland
	<input type="checkbox"/> Subtropical	<input type="checkbox"/> Wet Sclerophyll	<input type="checkbox"/> Shrub Woodland
	<input type="checkbox"/> Dry	<input type="checkbox"/> Dry Sclerophyll	<input type="checkbox"/> Heath Woodland
	<input type="checkbox"/> Temperate	<input type="checkbox"/> Swamp Sclerophyll	<input type="checkbox"/> Tall Woodland
SURVEY CODE			
ROCKY SCARP (>100m long & within 500 m of compartment) contiguous with habitat			Present <input type="checkbox"/> Absent <input type="checkbox"/>
FIRE HISTORY			< 2 yrs <input type="checkbox"/> >2 yrs <input type="checkbox"/> Unknown <input type="checkbox"/>
"SUITABLE HABITAT" PRESENT IN COMPARTMENT			YES <input type="checkbox"/> NO <input type="checkbox"/> Assessment Required No Assessment Required

Number of hectares in Net Survey Area of cpt	
Number of rapid assessment sites required (1 per 10 ha)	

RAPID ASSESSMENT (tick boxes or include hectares, note MGA's for each site)

Site	Easting	Northing	Suitable groundcover e.g. diversity of grass, sedge, rush, herbs, forbs, heath & fern present?	Scattered refugia e.g. logs, basal hollows, rocks, ground cavities present?	Site Assessment: Unsuitable/M/H
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
Number of hectares with medium/high habitat					
TRAPPING REQUIRED			YES <input type="checkbox"/> NO <input type="checkbox"/>		

Site Notes

