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NATIVE VEGETATION REGULATION 2013

Clearing of Invasive Native Species

Order made under clause 38

I, Robert Stokes, Minister administering the *Native Vegetation Act 2003*, by this order under clause 38 of the *Native Vegetation Regulation 2013*, declare the species of native vegetation listed in Appendix 1 of Schedule A to be invasive native species for the Local Land Services Region/s for which they are listed.

In making this order I am satisfied that each species of native vegetation listed in Appendix 1 of Schedule A is:

- (a) within its natural range in the area specified, and
- (b) densely regenerating or is invading plant communities in which the species does not generally occur, which is causing decline in the structure or composition of the vegetation community.

The order is made for all land in New South Wales to which the *Native Vegetation Act 2003* applies.

This order is made subject to the conditions in **Schedule A**.

Signed at Sydney, this 14th day of November 2014

The Honourable ROBERT STOKES, MP
Minister for the Environment

SCHEDULE A

Conditions for the Clearing of Invasive Native Scrub

Purpose of these conditions

For the purposes of this Ministerial Order, 'invasive native scrub' (INS) refers to plants:

- (a) for which the species is declared an invasive native species (that is listed in Appendix 1) for the relevant Local Land Services Region, and
- (b) are regenerating densely or are invading plant communities, causing decline in the structure or composition of the vegetation community.

Clearing of INS will be a routine agricultural management activity if it is carried out in accordance with this Ministerial Order and the conditions of the order set out in this Schedule.

The intent is to allow for self-assessment to control and manage INS. The objective of INS clearing is to create a mosaic of native vegetation states across the landscape by allowing the clearing of some of the INS and encouraging the re-establishment of and/or natural regeneration of more desirable native vegetation.

A stream-lined Property Vegetation Plan (PVP) assessment is available for clearing proposals that cannot be cleared in accordance with this order, or where the preferred clearing types or species are not permitted under this order. A stream-lined PVP is also available where a landholder would prefer a PVP rather than clearing under this order.

1. What can be cleared?

1.1 INS can be cleared if:

- (a) the plants to be cleared are of a species that is a declared invasive native species (as listed in Appendix 1) for the relevant Local Land Services Region, and
- (b) the plants to be cleared are regenerating densely or are invading plant communities, causing decline in the structure or composition of the vegetation community.

2. How can the vegetation be cleared?

Subject to the site characteristics outlined in Section 3, clearing may only be undertaken using one or more of the following clearing types:

- (a) management burning
- (b) clearing individual plants with nil to minimal disturbance to soil and groundcover
- (c) clearing plants at paddock scale with nil to minimal disturbance to soil and groundcover
- (d) clearing plants at paddock scale with temporary disturbance to soil and groundcover
- (e) clearing plants at paddock scale with longer-term disturbance to soil and groundcover.

3. Where can the clearing types be used?

3.1 The clearing types identified in Section 2.1 **can only** be used according to the site characteristic of the land where the clearing is to take place. In Table 1, a '✓' indicates the availability of a clearing type for use on land with the corresponding site characteristic. A clearing type **cannot** be used on land where a '✗' occurs against the relevant site characteristic.

Table 1: Clearing type availability for different site characteristics

	Clearing type				
	Management burning	Clearing individual plants with nil to minimal disturbance to soil and groundcover	Clearing plants at paddock scale with nil to minimal disturbance to soil and groundcover	Clearing plants at paddock scale with temporary disturbance to soil and groundcover	Clearing plants at paddock scale with longer-term disturbance to soil and groundcover
	a)	b)	c)	d)	e)
Site characteristic					
1. Non-INS trees and shrubs represent >50% of the total number of trees and shrubs	✓	✓	✗	✗	✗
2. The vegetation is a threatened ecological community	✓	✓	✗	✗	✗
3. The INS to be cleared is <i>Duma florulenta</i> (syns.: <i>Muehlenbeckia cunninghamii</i> & <i>Muehlenbeckia florulenta</i> (lignum)) and/or <i>Casuarina cristata</i> (Belah)	✓	✓	✗	✗	✗
4. The area to be cleared is of low land degradation risk	✓	✓	✓	✓	✓
5. The area to be cleared is of moderate land degradation risk	✓	✓	✓	✓	✗
6. The area to be cleared is of high land degradation risk	✓	✓	✗	✗	✗
7. The area to be cleared is within 30 metres of an estuary, wetland, or incised watercourse	✓	✓	✗	✗	✗
8. The area to be cleared is within 100 metres of an estuary, wetland, or incised watercourse	✓	✓	✓	✗	✗

4. How much can be cleared?

4.1 No more than 80% of the INS extent on the landholding may be cleared; that is, 20% of the INS extent must be retained and not cleared by any clearing type.

- 4.2 If clearing greater than 200 hectares on a landholding using clearing types c) and/or d) and/or e) (as listed in Section 2.1) the initial clearing increment must not exceed 40% of the INS extent on the landholding, except as set out in condition 4.3 below.
- 4.3 A further 40% of the INS extent may be cleared using clearing type c) and/or d) and/or e) (as listed in Section 2.1) if the area cleared in the initial clearing increment by these clearing types has achieved and maintained for a period of at least 12 months the following minimum groundcover recovery levels:
- a groundcover of greater than 50%, and
 - the groundcover consists of greater than 75% native groundcover.
- 4.4 The initial 40% cleared (referred to in condition 4.2 above) may be re-cleared using clearing type c) and/or d) and/or e) (as listed in Section 2.1) if:
- all additional areas cleared have achieved the groundcover recovery levels as defined in condition 4.3 above, and
 - no more than 40% of the INS extent is cleared at any one time.

Table 2: Proportion of INS extent able to be cleared by each clearing type

Clearing type a) Management burning	80%		20%
Clearing type b) Clearing individual plants with nil to minimal disturbance to soil and groundcover	80%		20%
Clearing type c) Clearing plants at paddock scale with nil to minimal disturbance to soil and groundcover	40%	40%	20%
Clearing type d) Clearing plants at paddock scale with temporary disturbance to soil and groundcover	40%	40%	20%
Clearing type e) Clearing plants at paddock scale with longer-term disturbance to soil and groundcover	40%	40%	20%

Key to shading:

	This proportion of INS on the landholding can be cleared in accordance with the conditions
	This proportion is a second increment for each clearing type
	This proportion must remain uncleared by any clearing type

Note: 80% may be cleared by clearing types c), d) and e) if the area to be cleared is less than 200 hectares per landholding.

5. Conditions applying to all clearing types:

- Clearing carried out under this Ministerial Order must not result in a change of land use from a grazing system to a cropping system.
- All native groundcover, retained individuals of the INS and all non-INS must be retained following clearing.
- Clearing carried out under this Ministerial Order must be for the purpose of re-establishing native vegetation or allowing natural regeneration of native vegetation in order to maintain or create a mosaic of native vegetation states across the landscape.
- Clearing of non-INS must be limited to the minimum extent necessary to clear the INS.
- Clearing using this order is not permitted in areas where either the Thinning of native vegetation order or the Clearing of paddock trees in a cultivation area order have been used.

Note: The limitation on change of land use in clause 5.1 does not prevent the use of short-term cropping in accordance with clearing type e) (clearing type as listed in Section 2.1).

6. If clearing by clearing type a) *Management burning*:

- Clearing must not result in soil surface disturbance.

6.2 Clearing must not result in the intentional introduction into the cleared area of any non-native vegetation.

7. If clearing by clearing type b) *Clearing individual plants with nil to minimal disturbance to soil and groundcover:*

7.1 Clearing must only be undertaken by clearing of individual INS plants, with minimal disturbance to soil and groundcover.

7.2 Plants of the species listed in Appendix 1 as requiring retention (see column 14) are to be retained at the densities specified in Appendix 1, except where more than one species of INS is present in the area to be cleared.

7.3 Where more than one species of INS is present on the area to be cleared, the total stems required to be retained does not exceed 20 stems per hectare for stems under the maximum diameter at breast height over bark (DBHOB) allowed to be cleared.

7.4 Stems retained as set out in Section 7.3 must reflect the proportion of total individuals for each species present.

7.5 Where an individual tree or shrub retained in accordance with Sections 7.2, 7.3 and/or 7.4 above has multiple stems, then that tree or shrub is counted as one stem for the purposes of calculating the retention requirements.

7.6 Individual plants of INS with a DBHOB greater than the 'maximum DBHOB allowed to be cleared' listed for the corresponding species in Appendix 1 must not be cleared.

7.7 Within 30 metres of an estuary, wetland or incised watercourse the clearing must only be undertaken by removing individual trees and woody shrubs with no disturbance to soil, groundcover.

7.8 The clearing must not result in the intentional introduction into the cleared area of any non-native vegetation.

Note: Examples of clearing type b) *Clearing individual plants with nil to minimal disturbance to soil and groundcover* include but are not limited to chemical spot treatment, ringbarking or grubbing.

8. If clearing by clearing type c) *Clearing plants at a paddock scale with nil to minimal disturbance to soil and groundcover:*

8.1 The clearing of groundcover and disturbance to soil surface must be limited to the minimum extent necessary.

8.2 Non-INS must comprise less than 10% of the total number of individual trees and shrubs cleared.

8.3 Non-INS with a stem or trunk greater than 20 cm DBHOB and INS with a stem or trunk greater than the 'maximum DBHOB allowed to be cleared' must not be cleared.

8.4 The clearing must not result in the intentional introduction into the cleared area of any non-native vegetation except the sowing of non-persistent annual non-native vegetation by zero till.

8.5 If more than 500 hectares are to be cleared, a minimum of 20% of the native vegetation on that area must be retained on each 500 hectare area within or between cleared areas and must be part of the INS extent. The native vegetation retained for the purposes of this provision may be included in the calculation of the 20% uncleared area of INS extent on the landholding.

Note: Examples of clearing type c) *Clearing plants at paddock scale with nil to minimal disturbance to soil and groundcover* include but are not limited to chaining, slashing, roping or stick raking applied with minimal disturbance to soil and groundcover.

9. If clearing by clearing type d) *Clearing plants at paddock scale with temporary disturbance to soil and groundcover:*

9.1 The clearing of groundcover and disturbance to soil surface must be limited to the minimum extent necessary.

9.2 Non-INS must comprise less than 10% of the total number of individual trees and shrubs cleared.

9.3 Non-INS with a stem or trunk greater than 20 cm DBHOB and INS with a stem or trunk greater than the 'maximum DBHOB allowed to be cleared' must not be cleared except where the clearing is not intentional and does not exceed 20 stems per hectare.

9.4 The clearing must not result in the intentional introduction into the cleared area of any non-native vegetation except the sowing of non-persistent annual non-native vegetation as part of the clearing operation and is limited to **three occasions in 15 years** from the date of notification of the intention to use this Ministerial Order, and the non-native vegetation is not harvested.

9.5 If more than 500 hectares are to be cleared, a minimum of 20% of the native vegetation on that area must be retained on each 500 hectare area within or between cleared areas and must be part of the INS extent. The native vegetation retained for the purposes of this provision may be included in the calculation of the 20% uncleared area of INS extent on the landholding.

Note: Examples of clearing type d) *Clearing plants at paddock scale with temporary disturbance to soil and groundcover* include but are not limited to bladeploughing or crocodiling.

10. If clearing by clearing type e) *clearing plants at a paddock scale with longer-term disturbance to soil and groundcover:*

10.1 The clearing of groundcover and disturbance to soil surface must be limited to the minimum extent necessary.

- 10.2 Non-INS must comprise less than 10% of the total number of individual trees and shrubs cleared.
- 10.3 Non-INS with a stem or trunk greater than 20 cm DBHOB and INS with a stem or trunk greater than the 'maximum DBHOB allowed to be cleared' must not be cleared except where the clearing is not intentional and does not exceed 20 stems per hectare.
- 10.4 The clearing must not result in the intentional introduction into the cleared area of any non-native vegetation except the preparation and sowing of non-persistent annual non-native vegetation limited to three occasions in 15 years from the date of first notification of the intention to use this Ministerial Order.
- 10.5 If more than 500 hectares are to be cleared, a minimum of 20% of the native vegetation on that area must be retained on each 500 hectare area within or between cleared areas and must be part of the INS extent. The native vegetation retained for the purposes of this provision may be included in the calculation of the 20% uncleared area of INS extent on the landholding.

Note: An example of clearing type e) *Clearing plants at paddock scale with longer-term disturbance to soil and groundcover* includes but is not limited to short-term cropping.

11. Definitions

In this order terms have the same meaning as in the *Native Vegetation Act 2003*, and the *Native Vegetation Regulation 2013*, unless otherwise defined below.

Annual non-native vegetation means a plant that is not native vegetation and which completes its life cycle, from germination to the production of seed, within one year, and then dies.

Clearing type a) means clearing by management burning.

Clearing type b) means clearing individual plants with nil to minimal disturbance to soil and groundcover.

Clearing type c) means clearing plants at paddock scale with nil to minimal disturbance to soil and groundcover.

Clearing type d) means clearing plants at paddock scale with temporary disturbance to soil and groundcover.

Clearing type e) means clearing plants at paddock scale with longer-term disturbance to soil and groundcover.

Density or densities means the number of plants per hectare.

Diameter at breast height over bark (DBHOB) means the diameter over the bark of the stem at 1.3 metres above the ground. If there are multiple stems on a tree then the diameter is measured on the largest stem.

Estuary means:

- (a) any part of a river whose level is periodically or intermittently affected by coastal tides, or
- (b) any lake or other partially enclosed body of water that is periodically or intermittently open to the sea.

INS extent means the extent of the areas on the landholding where:

- (a) INS is currently present, and
- (b) areas on the landholding where INS may not presently occur but where INS management is required to prevent their spread or recurrence.

Areas of non-native vegetation and areas of native vegetation not impacted by INS are not included in the INS extent on the landholding.

Invasive Native Scrub (INS) means plants that satisfy the following criteria:

- (a) the plants to be cleared are of a species listed in the INS database (Appendix 1), and
- (b) the plants to be cleared are regenerating densely or are invading plant communities, causing decline in the structure or composition of the vegetation community on the land to be cleared.

Land degradation risk is an indication of the level of risk of land degradation that could occur as a result of INS clearing. There are three risk levels: Low, Moderate and High. The risk level for the land to be cleared is determined in accordance with the land degradation risk assessment method at Appendix 2.

Landholding has the same meaning as it has in the *Native Vegetation Regulation 2013*.

Local Land Services (LLS) has the same meaning as it has in the *Local Land Services Act 2013*.

Management burning is planned and controlled use of fire for the purpose of managing INS.

Minimal disturbance means there has been no greater than 30% of the soil surface and existing groundcover disturbed (total area) as a result of the clearing.

No disturbance means there has been no greater than 5% of the soil surface and existing groundcover disturbed (total area) as a result of the clearing.

Non-native vegetation means vegetation that is not native vegetation, as defined by section 6 of the *Native Vegetation Act 2003*.

Non-INS means any plants that are not INS, as defined in Section 1 of this order.

Paddock scale means the clearing of multiple trees or shrubs at one time, usually by methods including but not limited to chaining, roping, bladeploughing and stickraking.

Routine agricultural management activities (RAMA) has the same meaning as it has in section 11 of the *Native Vegetation Act 2003*.

Soil disturbance means the turning, digging or disrupting of the soil surface, usually by an implement or machinery or by the pushing or pulling of trees or shrubs.

Strahler stream order means the stream order of a stream determined by the Strahler system as defined in Schedule 2, Part 1 of the *Water Management (General) Regulation 2011*.

Temporary disturbance means the application of a clearing method that causes significant soil disturbance, generally as a single pass, such as (but not limited to) bladeploughing or crocodiling.

Threatened ecological community means a threatened ecological community within the meaning of the *Threatened Species Conservation Act 1995* and listed in Part 3 of Schedule 1, Part 2 of Schedule 1A or Part 2 of Schedule 2 of that Act.

Visible channel means a visible path where water flows, regardless of flow regime, which shows some degree of incision or erosion.

Watercourse means a stream of Strahler stream order 3 or larger with a visible channel.

Wetland means any type of shallow body of water, other than a floodplain (such as a marsh, billabong, swamp or sedgeland) that is:

- (a) inundated cyclically, intermittently or permanently with water, and
- (b) vegetated with wetland plant communities.

Zero till means drilling of seed with minimal disturbance (less than 30%) to topsoil and no application of herbicide.

APPENDIX 1: INVASIVE NATIVE SPECIES DATABASE LISTING

“✓” indicates the species is declared an invasive native species for that Local Land Services Region.

Invasive native species	Central Tablelands	Central West	Greater Sydney	Hunter	Murray	North Coast	North West	Northern Tablelands	Riverina	South East	Western	Maximum DBHOB allowed to be cleared	Retention requirements when clearing by clearing type b) clearing of individual plants with nil to minimal disturbance to soil and groundcover (Number of plants per hectare to be retained)
<i>Acacia aneura</i> (mulga)		✓					✓		✓		✓	20 cm	20 stems under 20 cm DBHOB
<i>Acacia deanei</i> (Deane's wattle) ¹	✓	✓					✓	✓				n/a	nil
<i>Acacia homalophylla</i> (yarran)	✓	✓					✓				✓	20 cm	20 stems under 20 cm DBHOB
<i>Acacia mearnsii</i> (black wattle)	✓	✓								✓		n/a	nil
<i>Acacia paradoxa</i> (kangaroo thorn)	✓	✓										n/a	nil
<i>Acacia salicina</i> (cooba or native willow)	✓	✓					✓					20 cm	nil
<i>Acacia stenophylla</i> (black wattle or river cooba)	✓	✓			✓		✓	✓	✓		✓	20 cm	20 stems under 20 cm DBHOB

Invasive native species	Central Tablelands	Central West	Greater Sydney	Hunter	Murray	North Coast	North West	Northern Tablelands	Riverina	South East	Western	Maximum DBHOB allowed to be cleared	Retention requirements when clearing by clearing type b) clearing of individual plants with nil to minimal disturbance to soil and groundcover (Number of plants per hectare to be retained)
<i>Bursaria spinosa</i> (blackthorn) ²							✓						
<i>Callitris endlicheri</i> (black cypress)	✓	✓	✓	✓			✓	✓			✓	30 cm	20 stems under 30 cm DBHOB
<i>Callitris glaucophylla</i> (white cypress)	✓	✓			✓		✓	✓	✓		✓	30 cm	20 stems under 30 cm DBHOB
<i>Cassinia arcuata</i> (sifton bush)	✓	✓	✓				✓	✓	✓			n/a	nil
<i>Cassinia laevis</i> (cough bush)	✓	✓					✓	✓	✓			n/a	nil
<i>Cassinia quinquefaria</i>	✓	✓					✓	✓				n/a	nil
<i>Casuarina cristata</i> (belah)		✓					✓				✓	20 cm	20 stems under 20 cm DBHOB
<i>Dodonaea viscosa</i> subsp. <i>angustissima</i> (narrow-leaf hopbush)	✓	✓					✓	✓	✓		✓	n/a	nil
<i>Dodonaea viscosa</i> subsp. <i>mucronata</i>	✓	✓					✓					n/a	nil
<i>Dodonaea viscosa</i> subsp. <i>spatulata</i> (broad-leaf hopbush)	✓	✓					✓	✓	✓		✓	n/a	nil
<i>Eremophila bignoniiflora</i> (eurah)	✓	✓					✓				✓	n/a	nil
<i>Eremophila bowmanii</i> subsp. <i>bowmanii</i> (silver turkey bush)	✓	✓									✓	n/a	nil
<i>Eremophila duttonii</i> (harlequin fuchsia bush)		✓									✓	n/a	nil
<i>Eremophila gilesii</i> (green turkey-bush)											✓	n/a	nil

Invasive native species	Central Tablelands	Central West	Greater Sydney	Hunter	Murray	North Coast	North West	Northern Tablelands	Riverina	South East	Western	Maximum DBHOB allowed to be cleared	Retention requirements when clearing by clearing type b) clearing of individual plants with nil to minimal disturbance to soil and groundcover (Number of plants per hectare to be retained)
<i>Eremophila longifolia</i> (emu bush)	✓	✓					✓	✓	✓		✓	n/a	nil
<i>Eremophila maculata</i> (spotted fuchsia)		✓					✓	✓				n/a	nil
<i>Eremophila mitchellii</i> (budda, false sandalwood)	✓	✓					✓	✓	✓		✓	n/a	nil
<i>Eremophila sturtii</i> (turpentine)		✓					✓		✓		✓	n/a	nil
<i>Eucalyptus camaldulensis</i> (river red gum)	✓	✓			✓		✓		✓			30 cm	20 stems under 30 cm DBHOB
<i>Eucalyptus coolabah</i> (coolibah)		✓					✓				✓	20 cm	20 stems under 20 cm DBHOB
<i>Eucalyptus intertexta</i> (red box)		✓									✓	30 cm	20 stems under 30 cm DBHOB
<i>Eucalyptus largiflorens</i> (black box)		✓			✓		✓				✓	20 cm	20 stems under 20 cm DBHOB
<i>Eucalyptus populnea</i> subsp. <i>bimbil</i> (bimble box, poplar box)		✓					✓				✓	30 cm	20 stems under 30 cm DBHOB
<i>Geijera parviflora</i> (wilga)		✓					✓				✓	20 cm	20 stems under 20 cm DBHOB
<i>Kunzea ericoides</i> (burgan)		✓	✓								✓	n/a	nil
<i>Kunzea parvifolia</i> (violet kunzea)		✓	✓								✓	n/a	nil
<i>Leptospermum brevipes</i> (grey tea-tree, tea-tree)		✓					✓	✓				n/a	nil
<i>Maireana microphylla</i> (eastern cotton bush)	✓	✓										n/a	nil

Invasive native species	Central Tablelands	Central West	Greater Sydney	Hunter	Murray	North Coast	North West	Northern Tablelands	Riverina	South East	Western	Maximum DBHOB allowed to be cleared	Retention requirements when clearing by clearing type b) clearing of individual plants with nil to minimal disturbance to soil and groundcover (Number of plants per hectare to be retained)
<i>Duma florulenta</i> (syns.: <i>Muehlenbeckia cunninghamii</i> & <i>Muehlenbeckia florulenta</i> (lignum))		✓					✓				✓	n/a	nil
<i>Nitraria billardierei</i> (Dillon bush)		✓			✓							n/a	nil
<i>Olearia elliptica</i> subsp. <i>elliptica</i> (sticky daisy bush, peach bush)		✓					✓	✓				n/a	nil
<i>Scerolaena birchii</i> (galvanized burr)		✓			✓		✓	✓	✓		✓	n/a	nil
<i>Scerolaena muricata</i> (black roly-poly) ³		✓			✓		✓	✓	✓		✓	n/a	nil
<i>Senna artemisioides</i> subsp. X <i>artemisioides</i> (syn.: <i>Senna</i> form taxon 'artemisioides' (silver cassia))	✓	✓					✓		✓		✓	n/a	nil
<i>Senna artemisioides</i> subsp. <i>filifolia</i> (syn.: <i>Senna</i> form taxon 'filifolia' (punky bush))	✓	✓					✓		✓		✓	n/a	nil
<i>Vachellia farnesiana</i> (mimosa)	✓	✓					✓	✓			✓	n/a	nil

Notes:

¹ *Acacia deanei* (Deane's wattle) includes both subsp. *deanei* and *paucijuga*.² *Bursaria spinosa* (blackthorn) includes both subsp. *spinosa* and *lasiophylla*³ *Scerolaena muricata* (black roly-poly) includes all subsp. *muricata*, *semiglabra* and *villosa*.

APPENDIX 2: LAND DEGRADATION RISK ASSESSMENT METHOD
FOR THE CLEARING OF INS MINISTERIAL ORDER

The following land degradation risk assessment method must be used to determine the land degradation risk category for the purposes of the Clearing of INS Ministerial Order (INS Ministerial Order).

1. Introduction

The following land degradation hazards are assessed to determine a Land Degradation Risk Category (LD Risk Category) for use in relation to the application of the INS Ministerial Order:

- water erosion
- wind erosion
- shallow and rocky soils.

The LD Risk Category is determined for each of these land degradation hazards. The overall risk level is determined by the highest risk level out of the three individual hazards.

2. Land Degradation Risk Categories

This simplified land degradation risk assessment process determines a risk category for the INS Ministerial Order.

The method must be used to classify the area to be cleared into one of the following risk categories:

- Low Land Degradation Risk Category
- Moderate Land Degradation Risk Category
- High Land Degradation Risk Category.

3. Assessing water erosion hazard

Water erosion hazard is the susceptibility of land to soil erosion by moving water.

Slope, evidence of existing gully erosion and whether the site is a high run on area are used to determine the LD Risk Category for water erosion according to Table A2.1 below.

Table A2.1: Water erosion hazard criteria

<i>Slope (%)</i>	<i>Land is a high run on area or there is evidence of existing erosion</i>	<i>LD Risk Category</i>
0–3%		Low risk
>3–8%	Not a water run on area and no evidence of existing gully erosion	Low risk
	Land receives a lot of water run off or there is evidence of existing gully erosion on the land	High risk
>8–25%	Not a water run on area and no evidence of existing gully erosion	Moderate risk
	Land receives a lot of water run off or there is evidence of existing gully erosion on the land	High risk
>25		High risk

2. Assessing wind erosion hazard

Wind erosion hazard is the susceptibility of land to the erosion of soil particles by wind.

Wind erodibility of soil (amount of clay) and average annual rainfall are used to determine the LD Risk Category for wind erosion according to Table A2.2 below:

Table A2.2: Wind erosion hazard criteria

<i>Average annual rainfall</i>	<i>Wind erodibility class of surface soil</i>	<i>LD Risk Category</i>
0–300 mm	Low erodibility: loams, clay loams, clays (>13% clay) and	Low risk
	Moderate erodibility: fine sandy loams, sandy loams (clay 6 to <13%)	
	High erodibility: loam sands, loose sands (clay <6%)	Moderate risk

<i>Average annual rainfall</i>	<i>Wind erodibility class of surface soil</i>	<i>LD Risk Category</i>
>300 mm	Low erodibility: loams, clay loams, clays (>13% clay)	Low risk
	Moderate erodibility: fine sandy loams, sandy loams (clay 6 to <13%)	Moderate risk
	High erodibility: loam sands, loose sands (clay <6%)	High risk

3. Assessing shallow and rocky soil hazard

Shallow soils and rockiness increase the LD Risk Category.

Average soil depth and percentage exposure of rocky outcrops are used to determine the LD Risk Category for shallow and rocky soil hazard according to Table A2.3 below.

Average soil depth is the depth from the soil surface to bedrock.

Table A2.3: Shallow and rocky soils hazard criteria

<i>Soil depth (cm)</i>	<i>Rocky outcrop (% coverage)</i>	<i>LD Risk Category</i>
>50	0–30	Low risk
	30–50	Moderate risk
	>50	High risk
0–50cm	0–30	Moderate risk
	>30	High risk

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NATIVE VEGETATION REGULATION 2013

Notice of Other Information under the Native Vegetation Regulation 2013

Under clause 43 (2) (b) (ix) of the *Native Vegetation Regulation 2013*, I require the other information described in **Schedule 1** to be included in notification under clause 43(1) of the *Native Vegetation Regulation 2013*.

Signed at Sydney, this 19th day of November 2014

The Hon ROBERT STOKES, MP
Minister for the Environment

SCHEDULE 1

For all orders:

1. The landholder's contact details including: name, address, telephone number and email address; and
2. A map of the property showing the location of area to be cleared.

For the clearing of paddock tree order (in addition to the above):

- A. A map of the property showing the location of the set aside area; and
- B. The number of hectares of the set aside area.

NATIVE VEGETATION REGULATION 2013

Clearing of Paddock Trees in a Cultivation Area

Order Made under clause 41

I, Robert Stokes, Minister administering the *Native Vegetation Act 2003*, by this order under clause 41 of the *Native Vegetation Regulation 2013*, declare clearing of a paddock tree in a cultivation area to be a routine agricultural management activity.

This order is made subject to the conditions in **Schedule A**.

Signed at Sydney, this 14th day of November 2014

The Honourable ROBERT STOKES, MP
Minister for the Environment

**SCHEDULE A: CONDITIONS FOR THE CLEARING OF PADDOCK
TREES WITHIN A CULTIVATION AREA****Purpose of these conditions**

Clearing of a paddock tree in a cultivation area has been declared by the Minister for the Environment to be a routine agricultural management activity (RAMA). As a result, the clearing of a paddock tree will be a RAMA if it is carried out in accordance with the Clearing of paddock trees in a cultivation area order made under clause 41 of the *Native Vegetation Regulation 2013* and the conditions or the order set out in this schedule.

The intent of this order is to facilitate the removal of paddock trees in relatively small numbers for improved production efficiencies, while balancing environmental protection and loss. Landholders are able to design and implement their own plan for balancing environmental loss by securing the protection of remnant vegetation or by establishing and maintaining native vegetation areas.

A stream-lined assessment to obtain a Property Vegetation Plan (PVP) from Local Land Services is available where the proposed clearing of paddock trees may be more complex and cannot be cleared in accordance with this order.

1. What can be cleared?

- 1.1 A paddock tree within a cultivation area can only be cleared if it is an individual living native tree less than 80 centimetres diameter at breast height over bark (DBHOB), and is either:
- (a) located more than 50 metres away from any living native tree that is 20 centimetres or greater DBHOB and is within a cultivation area on the same landholding, or
 - (b) a group of three (3) or fewer living native trees within a distance of 50 metres of each other, that in turn, are greater than 50 metres from the next living tree that is 20 centimetres or greater DBHOB and that is within a cultivation area on the same landholding.

2. What cannot be cleared?

- 2.1 A paddock tree within a cultivation area cannot be cleared if it is:
- (a) an individual living native tree 80 centimetres or greater DBHOB, or
 - (b) located on vulnerable land, or
 - (c) located within 30 metres from the high bank of a watercourse, estuary or wetland, or
 - (d) a tree, or group of trees, that are growing within an area greater than 0.25 hectares and the proportion of groundcover is greater than 50% indigenous species.

3. How much can be cleared?

- 3.1 A maximum of 200 paddock trees within a cultivation area may be cleared per 1000 hectares of landholding size, (or pro rata) per notification.
- 3.2 If the total set aside required by Section 4 is in place, prior to notification, the above limit (in Section 3.1) does not apply.

4. What other conditions apply?

- 4.1 Clearing of paddock trees in a cultivation area must be balanced by the establishment and ongoing management of a 'set aside' area.
- 4.2 Set aside areas must be established prior to submitting additional notification(s) to use this order on the same landholding.

Retention of mature trees and/or re-establishment of native trees in the set aside area

- 4.3 The set aside area must include either mature native trees, or re-established native trees, or a combination of both.

- 4.4 For every paddock tree 20 centimetres DBHOB or greater that is cleared within a cultivation area, a set aside area must include mature and/or re-established native trees in the following ratios according to the extent (area) of remnant native vegetation remaining on the landholding:
- (a) 5 trees per tree cleared, where there is greater than 70% remnant native vegetation on the landholding, or
 - (b) 10 trees per tree cleared, where there is 30% to 70% remnant native vegetation on the landholding, or
 - (c) 15 trees per tree cleared, where there is less than 30% remnant native vegetation on the landholding.
- 4.5 Retained mature trees must include the same or similar species as those paddock trees cleared within the cultivation area.
- 4.6 Re-established native trees in the set aside area must be of the same species as the paddock trees being cleared in a cultivation area or be naturally occurring local tree species.
- 4.7 The set aside area must be:
- (a) located on the same landholding as the cultivation area in which the paddock trees are cleared, and
 - (b) established on the landholding within 12 months from the notification date, and
 - (c) additional to previous or existing works carried out using public funds or to fulfil other regulatory obligations (eg PVP offsets or remediation areas), and
 - (d) managed and maintained in accordance with the required management actions outlined in Appendix 1.
- 4.8 Clearing using this order is not permitted in areas where either the Clearing of invasive native species order or the Thinning of native vegetation order has been used.

5. Definitions

In this order terms have the same meaning as in the *Native Vegetation Act 2003*, and the *Native Vegetation Regulation 2013*, unless otherwise defined below.

Cultivation area is an area that is cropped, ploughed or fallow at the time of notification.

Diameter at breast height over bark (DBHOB) means the diameter over the bark of the stem at 1.3 metres above the ground. If there are multiple stems on a tree then the diameter is measured on the largest stem.

Estuary means:

- (a) any part of a river whose level is periodically or intermittently affected by coastal tides, or
- (b) any lake or other partially enclosed body of water that is periodically or intermittently open to the sea.

Floodplain means an area of flat or nearly flat land that floods at high to very high river flows and/or from local, sustained rainfall. Floodplains are adjacent to one or more areas of lower land (e.g. river, depressions), which flood more frequently and/or for longer periods than the floodplain.

Landholding has the same meaning as it has in the *Native Vegetation Regulation 2013*.

Local Land Services (LLS) has the same meaning as it has in the *Local Land Services Act 2013*.

Routine agricultural management activities (RAMA) has the same meaning as it has in section 11 of the *Native Vegetation Act 2003*.

Set aside area means an area or areas that are designated for conservation to balance the environmental loss associated with the clearing of paddock trees in cultivation.

Strahler stream order means the stream order of a stream determined by the Strahler system as defined in Schedule 2, Part 1 of the *Water Management (General) Regulation 2011*.

Visible channel means a visible path where water flows, regardless of flow regime, which shows some degree of incision or erosion.

Vulnerable land means land identified as:

- (a) steep or highly erodible land
- (b) protected riparian land being within 20 metres of specified watercourses, or
- (c) special category land

on the map in the *Natural Resource Management Plan – Vulnerable Land* at: www.environment.nsw.gov.au/vegetation/vulnerable.htm.

Watercourse means a stream of Strahler stream order 3 or larger with a visible channel.

Wetland means any shallow body of water, other than a floodplain (such as a marsh, billabong, swamp or sedgeland) that is:

- (a) inundated cyclically, intermittently or permanently with water, or
- (b) vegetated with wetland plant communities.

APPENDIX 1: SET ASIDE AREA MANAGEMENT ACTIONS

Required management actions

The following required management actions must be implemented within the designated set aside area.

Management action	Intent of management action
No clearing allowed except for the use of RAMAs to: maintain permanent fences control noxious weeds control pest animals control feral native species, or mitigate imminent risk of serious personal injury or damage to property.	<i>To allow for the continuation of certain routine land management.</i>
Establish and maintain revegetation	<i>To ensure the set aside area is designed and implemented within 12 months of the notification date and maintained in the long term.</i>
Retain regrowth	<i>To retain or enhance conservation and habitat value in the set aside area.</i>
Retain standing dead timber	<i>To retain or enhance conservation and habitat value for native flora and fauna in the set aside area.</i>
Retain logs	<i>To retain or enhance conservation and habitat value for native flora and fauna in the set aside area.</i>
Retain rocks	<i>To retain or enhance conservation and habitat value for native flora and fauna in the set aside area.</i>
Strategic grazing	<i>To exclude domestic stock grazing for the first 5 years after establishing a set aside area (applies to re-established native vegetation works only). After the first 5 years of stock exclusion, domestic stock grazing is allowed for up to 4 weeks per calendar year. This is to maintain and enhance native groundcover.</i>
Feral herbivore control	<i>To reduce the damage from feral herbivores such as goats and rabbits to the habitat value of the native groundcover.</i>
Weed control (exotic species)	<i>To reduce the extent and amount of exotic species in a set aside area.</i>
Protect trees from agricultural chemicals	<i>To ensure that the trees in the set aside area are not affected by agricultural chemical use associated with farming practices that may reduce their life expectancy.</i>

Recommended management actions

The following additional management actions may be implemented in the set aside area. The decision to use or not to use these management actions is at the discretion of the landholder.

Management action	Intent of management action
Exclude commercial apiaries	<i>To ensure adequate nectar supplies for native fauna.</i>
Exclusion of fire	<i>To reduce the impact of fire on fire sensitive plants.</i>
Fencing	<i>To assist in the active management or exclusion of domestic stock grazing.</i>

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NATIVE VEGETATION REGULATION 2013

Thinning of Native Vegetation

Order Made under Clause 40

I, Robert Stokes, Minister administering the *Native Vegetation Act 2003*, by this order under clause 40 of the *Native Vegetation Regulation 2013*, declare thinning of native vegetation on all land in the State of New South Wales subject to the *Native Vegetation Act 2003* to be a routine agricultural management activity.

This order is made subject to the conditions in **Schedule A**.

Signed at Sydney, this 19th day of November 2014

The Honourable ROBERT STOKES, MP
Minister for the Environment

SCHEDULE A

Conditions for the Thinning of Native Vegetation

Purpose of these conditions

Thinning of native vegetation has been declared by the Minister for the Environment to be a routine agricultural management activity on specified land. As a result, the thinning of native vegetation will be a routine agricultural management activity if it is carried out in accordance with the Thinning of native vegetation order and the conditions of the order set out in this schedule.

The intent is to facilitate clearing of native trees and woody shrubs in defined areas of thickened native vegetation. The benchmark stem densities are applied at the Keith vegetation formation level.

A stream-lined Property Vegetation Plan (PVP) assessment is available for more complex clearing proposals where threatened species may need to be considered further, or where negotiation concerning the design of the spatial arrangement of the retained stems may be desirable.

Thinning for the purposes of private native forestry, and / or any commercial harvesting, is not permitted under this order and approval will need to be sought through a Private Native Forestry (PNF) PVP – refer to Definitions.

1. What can be thinned?

1.1 Only vegetation that meets the following criteria can be thinned:

- (a) the vegetation must form part of a vegetation formation suitable for thinning as defined in Appendix 1, and
- (b) if the vegetation is located within the coastal thinning zone of NSW it must only be from the following Genera: *Acacia* (wattles), *Allocasuarina* (oak, sheoak), *Angophora* (apples), *Callitris* (cypress pine), *Casuarina* (oak, sheoak), *Corymbia* (bloodwoods, spotted gums), *Eucalyptus* (box, gum, ironbark, stringybark, peppermint), *Leptospermum* (teatree), *Melaleuca* (paperbark) or *Syncarpia* (turpentine).

2. What cannot be thinned?

2.1 Native trees and woody shrubs must not be cleared if:

- (a) the vegetation is of a vegetation formation not suitable for thinning as defined in Appendix 1, or
- (b) it is a species listed as a threatened species or is vegetation that is, or is part of, a threatened ecological community listed under Schedules 1A, 1 or 2 of the *Threatened Species Conservation Act 1995*, or
- (c) it is located in a forested wetland within the coastal thinning zone, or
- (d) it is a genera not listed in 1.1(b) and is located within the coastal thinning zone, or
- (e) it is located on visibly rocky areas, skeletal soils, dune fields or lunettes.

3. How much can be thinned?

- 3.1 All thinned vegetation must retain a stem density for each hectare not less than 75% of the benchmark stem density as specified in Appendix 1.
- 3.2 The retained stems must include the largest stems present on each hectare prior to thinning.
- 3.3 Thinning must result in an approximately even spacing between retained trees.
- 3.4 Thinning must not result in retained stems forming any type of narrow or linear configuration (i.e. strip or alley thinning).
- 3.5 Thinning must not result in the clearing of a structural layer of vegetation (i.e. underscrubbing to remove the shrub layer).
- 3.6 Where an individual tree or shrub retained in accordance with Section 3.1 above has multiple stems then that tree or shrub is counted as one stem for the purposes of calculating the retention requirements.

4. What other conditions apply?

- 4.1 Thinning carried out under the order must not result in a change in land use from a grazing system to a cropping system.
- 4.2 Thinning using the order must not be undertaken for the purposes of private native forestry and/ or any commercial harvesting including forestry undertaken under a Private Native Forestry Property Vegetation Plan.
- 4.3 Thinning must not occur with the use of chaining or roping methods.
- 4.4 Thinning within 30 metres of an estuary, wetland, or incised watercourse must only be undertaken by clearing individual trees and woody shrubs with no disturbance to soil and groundcover.
- 4.5 Thinning on steep and highly erodible, and special category vulnerable land, must only be undertaken by clearing individual trees and woody shrubs with no disturbance to soil and groundcover.
- 4.6 In all other areas, thinning must only be undertaken with minimal disturbance to soil and groundcover.
- 4.7 Incidental damage of non-target plants must be minimised.
- 4.8 Thinning must not occur on areas of woody native vegetation less than one hectare in size that are further than 100 metres from the next area of woody native vegetation.
- 4.9 Thinning must not result in cut stems or debris being stacked around or against retained mature trees or woody shrubs.
- 4.10 Clearing using this order is not permitted in areas where either the Clearing of invasive native species order or Clearing of paddock trees order has been used.

5. Definitions

In this order terms have the same meaning as in the *Native Vegetation Act 2003*, and the *Native Vegetation Regulation 2013*, unless otherwise defined below.

Benchmark stem density means the number of retained stems per hectare.

Coastal thinning zone means the following local government areas: Ballina, Bega Valley, Bellingen, Blue Mountains, Byron, Cessnock, Clarence Valley, Coffs Harbour, Dungog, Eurobodalla, Gloucester, Great Lakes, Greater Taree, Gosford, Kempsey, Kiama, Kyogle, Lake Macquarie, Lismore, Nambucca, Port Macquarie-Hastings, Port Stephens, Richmond Valley, Shoalhaven, Tweed, Wingecarribee, Wollondilly, Wollongong and Wyong.

Density or densities means the number of plants per hectare.

Diameter at breast height over bark (DBHOB) means the diameter over the bark of the stem at 1.3 metres above the ground. If there are multiple stems on a tree the diameter is measured on the largest stem.

Dunefields means an area of land that comprises a hill or ridge of wind-blown sand.

Estuary means:

- (a) any part of a river whose level is periodically or intermittently affected by coastal tides, or
- (b) any lake or other partially enclosed body of water that is periodically or intermittently open to the sea.

Forests are defined as areas that incorporate all living and non-living things and are dominated by trees that can grow to at least two metres high with a canopy that covers 20% or more of the ground cover.

Grassland means an area that is vegetation dominated by grasses and forbs containing less than 10% woody plant cover (shrubs or trees).

Groundcover means any type of herbaceous vegetation, native and non-native, living or dead.

Keith vegetation formation means the top level of hierarchy in the classification structure comprising broad groups based on structure and physiognomic features. The formations are described in *Ocean Shores to Desert Dunes: The native vegetation of New South Wales and the ACT* by David Keith (2004).

Landholding has the same meaning as it has in the *Native Vegetation Regulation 2013*.

Lunettes means an area that occurs mainly in the inland plains and is an elongated, gently recurved, low ridge consisting of sand or pelletised silt and clay which has been built up by wind action on the north-eastern or eastern margin of an ephemeral freshwater or saline lake or closed depression. A lunette typically has a wave-modified slope towards the lake or depression.

Minimal disturbance means there has been no greater than 30% of the soil surface and existing groundcover disturbed (total area) as a result of the clearing.

No disturbance means there has been no greater than 5% of the soil surface and existing groundcover disturbed (total area) as a result of the clearing.

Open Woodland means an area has been thinned to retain a minimum of 30 of the largest stems per hectare.

Private Native Forestry has the same meaning as it has in the *Native Vegetation Regulation 2013*.

Routine agricultural management activities (RAMA) has the same meaning as it has in section 11 of the *Native Vegetation Act 2003*.

Rocky areas means areas of land with >30% visible surface rock or rock outcrop.

Shrubland means an area comprised of a plant community that is characterised by vegetation dominated by shrubs but also includes grasses, herbs and geophytes.

Skeletal soils means soils that contain coarse fragments including gravels (2–75 mm), stones (75–300mm), or boulders (>300mm).

Stem diameter of a multi-stemmed tree means the DBHOB of the largest stem per tree.

Strahler stream order means the stream order of a stream determined by the Strahler system as defined in Schedule 2, Part 1 of the *Water Management (General) Regulation 2011*.

Thickened vegetation means native vegetation that has a greater number of stems than the benchmark stem density for the designated stem diameter class.

Thinning has the same meaning as in the *Native Vegetation Regulation 2013*.

Visible channel means a visible path where water flows, regardless of flow regime, which shows some degree of incision or erosion.

Vulnerable land means land identified as:

- (a) steep or highly erodible land
- (b) protected riparian land being within 20 metres of specified watercourses, or
- (c) special category land

on the map in the *Natural Resource Management Plan – Vulnerable Land* at www.environment.nsw.gov.au/vegetation/vulnerable.htm.

Watercourse means a stream of Strahler stream order 3 or larger with a visible channel.

Wetland means any type of shallow body of water, other than a floodplain (such as a marsh, billabong, swamp or sedgeland) that is:

- (a) inundated cyclically, intermittently or permanently with water, or
- (b) vegetated with wetland plant communities.

Woody shrubs means plants greater than 1.3 metres in height and with a measureable woody stem.

APPENDIX 1: VEGETATION FORMATIONS SUITABLE AND NOT SUITABLE FOR THINNING
USING THE ORDER, SHOWING THE BENCHMARK STEM DENSITY PER HECTARE

Vegetation formation ¹	Coastal thinning zone	Remaining areas of NSW	Benchmark stem density ² (Number of stems per ha)
Arid Shrublands (<i>Acacia</i> sub-formation)	✓	✓	150
Dry Sclerophyll Forests	✓	✓	300
Forested Wetlands	✗	✓	225
Grassy Woodlands	✓	✓	225
Semi-arid Woodlands	✓	✓	150
Wet Sclerophyll Forests (Grassy sub-formation)	✓	✓	300
Alpine Complex	✗	✗	Thinning not permitted
Arid Shrublands (Chenopod sub-formation)	✗	✗	Thinning not permitted
Freshwater Wetlands	✗	✗	Thinning not permitted
Grasslands	✗	✗	Thinning not permitted
Heathlands	✗	✗	Thinning not permitted
Rainforest	✗	✗	Thinning not permitted
Saline Wetlands	✗	✗	Thinning not permitted
Wet Sclerophyll Forests (Shrubby sub-formation)	✗	✗	Thinning not permitted

✓ = suitable for thinning

✗ = not suitable for thinning

¹ Vegetation formations are as described in Appendix 2.

² 75% of the above *benchmark stem density values* listed is the minimum number of stems that must be retained across each hectare of thinning. For example, in Grassy Woodlands a minimum of 169 stems (225 X 75%) need to be retained per hectare. The minimum number of stems must include the *largest* stems across each hectare of thinning present prior to thinning.

APPENDIX 2: DESCRIPTION OF KEITH VEGETATION FORMATIONS THAT CAN
AND CANNOT BE USED WITH THE ORDER ACROSS NSW

Arid Shrublands (*Acacia* sub-formation)

Vegetation dominated by drought-tolerant shrubs, predominantly acacias (i.e. wattles) in this sub-formation, and other hard-leaved (sclerophyllous) shrubs up to 5 m tall. Some perennial herbs and abundant ephemeral (ie plants with a short life cycle, but with long-lived seed banks that germinate after rain, flooding or fire) grasses and herbs after rain. Widespread on various soils on the western plains where average annual rainfall is less than 500 mm. Vegetation sometimes has abundant hummock grasses (ie commonly spinifex grasses with dome-shaped structures and spreading leaf blades) in the groundcover.

Dry Sclerophyll Forests

Vegetation dominated by trees, usually occurring as forests or rarely as woodlands (rarely >35 m tall), with an abundance of hard-leaved (sclerophyllous) shrubs in the understorey, but lacking plants that tolerate inundation or waterlogging. Only rarely dominated by 'box' eucalypts (bark rough and persistent on trunk and larger branches). Groundcover often sparse and typically dominated by sclerophyllous sedges, but may include reasonably continuous swards of grasses. Confined to the coast, tablelands and the western slopes, where average annual rainfall exceeds 500 mm, largely on infertile sandy or loamy soils.

Forested Wetlands

Vegetation dominated by trees, usually occurring as forests or woodlands with short to moderately tall trees (rarely >35 m tall), with an abundance of plant groups in the understorey that are able to tolerate periodic inundation or waterlogging, particularly sedges, rushes or reeds; but lacking in ferns and shrubs with broad, soft leaves. Widespread east and west of the Great Dividing Range, but confined to damp, low-lying parts of the coast, or adjacent to rivers, lakes or swamps in the inland. [Note: this formation must not be thinned in the Coastal thinning zone].

Grassy Woodlands

Vegetation dominated by trees (typically 15–35 m tall), usually occurring as woodlands or rarely forests that lack an abundance of hard-leaved (sclerophyllous) shrubs in the understorey. 'Box' eucalypts often dominant in the tree layer. Groundcover

is continuous and dominated by perennial tussock grasses and interspersed perennial herbs including orchids and lilies, but few ephemeral herbs and grasses. Shrubs generally sparse and typically not including chenopods (i.e. saltbushes, copperburrs, etc.), or other drought-tolerant species. Widespread on various soils west of the Great Dividing Range, but typically on relatively fertile loams and clay loams on the coastal lowlands, the tablelands and the western slopes, where average annual rainfall exceeds 500 mm.

Semi-arid Woodlands

Vegetation dominated by trees (typically 15–35 m tall), usually occurring as woodlands or open woodlands (ie widely-spaced tree canopies) that lack an abundance of hard-leaved (sclerophyllous) shrubs in the understorey. ‘Box’ eucalypts often dominant in the tree layer. Groundcover is sparse to continuous, usually with an abundance of ephemeral herbs and grasses apparent after rain and a variable cover of tussock grasses. Drought-tolerant shrubs prominent in the understorey, and often including chenopods. Widespread on a variety of soils west of the Great Dividing Range, particularly the western plains where average annual rainfall does not exceed 500 mm.

Wet Sclerophyll Forests (Grassy sub-formation)

Vegetation dominated by trees (typically >30 m tall), usually occurring as tall forests, forests or woodlands and dominated by straight-trunked eucalypts. Understorey is dominated by a more continuous cover of grasses and herbs in this sub-formation rather than by shrubs as per the shrubby sub-formation. Largely confined to moderately fertile soils in sheltered locations on the east coast escarpment, where average annual rainfall exceeds 900 mm.

Alpine Complex

Trees are absent or present only as scattered emergent individuals. Vegetation is dominated by plants that tolerate prolonged seasonal burial in snow. The Alpine Complex vegetation formation is restricted to the alpine zone of the southern tableland, above 1600–1800 metres elevation.

Arid Shrublands (Chenopod sub-formation)

Vegetation dominated by drought-tolerant shrubs, predominantly chenopods (such as saltbushes, bluebushes, copperburrs) up to 1.5 m tall. Some perennial herbs and abundant ephemeral (ie plants with a short life cycle, but with long-lived seed banks that germinate after rain, flooding or fire) grasses and herbs after rain. Widespread on various soils on the western plains where average annual rainfall is less than 500 mm. Arid Shrublands usually have perennial tussock grasses but never hummock grasses (such as spinifex grasses with dome-shaped structures and spreading leaf blades) in the groundcover.

Freshwater Wetlands

Trees are absent or present only as scattered emergent individuals. Vegetation is dominated by plants that cannot tolerate prolonged seasonal burial in snow and occur in landscapes below 1800 metres elevation. Freshwater Wetlands are dominated by plants that tolerate periodic inundation or waterlogging with fresh water. Vegetation is dominated by emergent sedges, rushes, reeds, grasses or succulent herbs, or in some cases by submerged or floating aquatic herbs. Soils are deep and often black or dark grey with partly decomposed organic matter. Freshwater Wetlands are restricted to swamps with humic or gleyed soils on the coast, tablelands, western slopes and plains.

Grasslands

Trees are absent or present only as scattered emergent individuals. Vegetation is dominated by plants that cannot tolerate prolonged seasonal burial in snow and occur in landscapes below 1800 metres elevation. Grasslands contain few (if any) plants that tolerate periodic inundation. Vegetation is dominated by perennial tussock grasses and herbs. Shrubs rarely present. Sometimes sedges but never submerged or floating aquatic herbs. Generally found on clay soils on flat to undulating terrain on the coast, tablelands, western slopes and plains.

Heathlands

Trees are absent or present only as scattered emergent individuals. Vegetation is dominated by plants that cannot tolerate prolonged seasonal burial in snow and occur in landscapes below 1800 metres elevation. Heathlands contain few (if any) plants that tolerate periodic inundation. Vegetation is dominated by hard-leaved but not drought tolerant shrubs, usually with perennial sedges, herbs and grasses. Perennial tussock grasses are absent or occasional but never dominant. Heathlands are generally restricted to infertile sandy or loamy soils of the coast, tablelands and western plains, where annual rainfall exceeds 800 millimetres per year.

Rainforest

Forests or woodlands not dominated by eucalypts, although these may be present as scattered individuals. Rainforests are dominated by trees with dense canopies touching those of adjacent trees (ie a ‘closed’ canopy), and with horizontally held leaves. Trees and shrubs typically have broad soft leaves. Rainforests primarily occur on the coastal lowlands, islands and escarpments extending to restricted locations on the north-western slopes. Rainforests occur on fertile to moderately fertile soils where average annual rainfall exceeds 1000 millimetres per year.

There are limited occurrences in dry rocky gorges of the escarpment and dry hills of the north-western slopes. Rainforest trees are not tolerant to tidal inundation. The understorey is usually open to dense, but never non-existent. Vines often occur in the tree canopies or understorey. Understorey typically includes ferns and herbs.

Saline Wetlands

Forests or woodlands not dominated by eucalypts, although these may be present as scattered individuals. Saline Wetlands are dominated by trees with dense canopies touching those of adjacent trees (ie a ‘closed’ canopy), and with horizontally

held leaves. Trees and shrubs typically have soft leaves. Saline Wetlands primarily occur on the coast, where average annual rainfall exceeds 1000 millimetres per year. Trees are tolerant of tidal inundation. The understorey is sparse to non-existent. Saline Wetlands are restricted to tidal estuaries along the coast.

Wet Sclerophyll Forests (Shrubby sub-formation)

Vegetation dominated by trees (typically >30 m tall), usually occurring as tall forests, forests or woodlands and dominated by straight-trunked eucalypts. Understorey is dominated by soft-leaved shrubs but only sparse grass cover. Largely confined to moderately fertile soils in sheltered locations on the east coast escarpment, where average annual rainfall exceeds 900 mm.

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