

Variation of Harvesting Plan for IFOA REMAKE TRIAL AREA

LOCATION

Compartment 38, Ingalba State Forest

CONDITION TO BE VARIED AND SPECIFIC INSTRUCTIONS

There was an error in the HP variation dated 14/7/15 regarding Koala feed tree retention conditions. The conditions in the following Table 3 to be applied in mark-up in the Option B treatment area and replace those of the variation dated 14/7/15.

APPROVED BY: Justin Williams - Operations Planning Manager

DATE: 26/07/2015

Table 3. Minimum Tree retention requirements in Regrowth Non- Intensive Zone – Ingalba SF

| <i>Element</i> | <i>Condition</i> |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum Basal Area | Retain a minimum average basal area of 16m ² /ha. |
| Habitat Tree | Retain a minimum of Five (5) habitat trees in every hectare of NHA where available. Mark retained habitat trees in field and on MapAPP with H. Where insufficient habitat trees exist to meet the required retention rate, make-up the deficit with additional recruitment trees. Mark these additional trees with an R in the field and on MapAPP. |
| Recruitment Tree | Retain a minimum of Five (5) recruitment trees in every hectare of NHA. Mark retained recruitment trees in field and on MapAPP with R. |
| Feed Tree | In addition to H and R Trees, retain a minimum of Five (5) feed trees in every hectare of NHA. Mark retained recruitment trees in field and on MapAPP with E. |
| Giant Tree (G) | Retain all Giant trees. Mark retained Giant trees in the field with H if hollow, R if not hollow and on MapAPP with L (Large habitat tree). |
| Dead Standing Tree | Do not fall dead standing trees, except as required for safety reasons. Dangerous trees should be marked in the field with ⚡ and on Map App with D (dangerous tree). |
| Koala Feed Trees (K) | Retain a minimum of Twenty (20) koala feed trees per ha in Ingalba. Retained koala feed trees may include those marked as H, R or E. Additional trees to be marked in the field and on MapApp with a K. |

Variation of Harvesting Plan for IFOA REMAKE TRIAL AREA

LOCATION

Compartment 38, Ingalba State Forest

CONDITION TO BE VARIED AND SPECIFIC INSTRUCTIONS

The following conditions are prepared under IFOA REMAKE TRIAL APPROVAL approved by Mark Gifford and dated 29/06/2015. The purpose and methodology of assessing the trial are described in that document. The purpose of this variation is to describe and map the location of the operational treatments in IngalbaCompartment 38.

Harvest Plan Maps 1 and 2 identify three harvesting treatment areas, these are

- (1) The original IFOA requirements (status quo) (Map 1).
- (2) Option A – the more flexible protection approach (Map 2).
- (3) Option B - the most conservative protection approach (Map 2).

The normal IFOA conditions apply in this treatment are described in the original approved harvest plan. That plan must be used to identify conditions that apply in the status quo area and map shows the location of exclusion zones. The silvicultural prescription in the status quo area is single tree selection.

Map 2 and the following conditions describe the specific requirements to be implemented in the Option A and Option B areas in lieu of current TSL and EPL requirements. The silvicultural prescription for these areas is selective harvesting with TSL tree retention and minimum basal area retention requirements.

Attachments:

HPOM Map 1 and 2

IFOA Remake Trial Approval

IFOA Remake Trial Method

APPROVED BY: Justin Williams - Operations Planning Manager

DATE: 14/07/2015

Managing Environmentally Significant Areas (ESAs)

Operational Boundary Conditions

1. Category 1 ESA

The following are *category 1ESAs* for the purposes of this *approval*:

- 1.1.1 *rainforest*;
- 1.1.2 *class 1 riparian exclusion zones*;
- 1.1.3 *riparianexclusion zones* within the:
 - (a) Regrowth – Intensive Zone;
- 1.1.4 *wetlands, major water storages* and all associated exclusion zones;
- 1.1.5 *heath and scrub* and all associated exclusion zones
- 1.1.6 *rock outcrop and cliff* features;
- 1.1.7 *threatened frog* – General Dam and all associated exclusion zones;
- 1.1.8 bird nest and roosts and all associated exclusion zones;
- 1.1.9 bat roost and camps and all associated exclusion zones;
- 1.1.10 *wildlife habitat clumps*.

2. Category 2 ESA

The following are *category 2ESAs* for the purposes of this *approval*:

- 1.2.1 *high conservation value old growth forest*;
- 1.2.2 *rare forest*;
- 1.2.3 *riparianexclusion zones* other than those specified in condition 1.1.3;
- 1.2.4 *ridge and headwater habitat* (40m and 80m corridors);
- 1.2.5 *rock outcrop and cliff* associated exclusion zones;
- 1.2.6 *brush-tailed phascogale exclusion zones*;
- 1.2.7 *large forest owl exclusion zones*;
- 1.2.8 *areas of forest management zones 2 and 3A*.

3. Forestry operations in a category 1 ESA

The following conditions apply to a *category 1 ESA*:

- 1.3.1 *forestry operations* are prohibited during the IFOA remake trial, unless approved by the EPA.

- 1.3.2 **machinery** entry into the **ESA** is prohibited;
- 1.3.3 trees must not be felled into the **ESA**;
- 1.3.4 **existing roads, tracks** and **drainage feature crossings** may be maintained and used;
- 1.3.5 **construction** or **upgrading** of **roads, tracks** or **drainage feature crossings** in the **ESA** is prohibited unless approved by the EPA. For the trial use the existing schedule 6 process to seek approval from the EPA.
- 1.3.6 any area within the **ESA** that is disturbed by **aforestry operation** must be stabilised and rehabilitated.

4. **Forestry operations in a category 2 ESA**

The following conditions apply to a **category 2 ESA**:

- 1.4.1 **forestry operations** are prohibited during the IFOA remake trial, unless approved by the EPA.
- 1.4.2 trees must not be felled into the **ESA** unless there is no practical alternative available for felling the tree into the **harvest area**, in which case no more than 6 trees in any 200 metre length of the **ESA** may be felled;
- 1.4.3 **machinery** entry into the **ESA**:
 - (a) is permitted in the outer 5 metres of the **ESA** for the purpose of felling a tree located within the **harvest area**, provided that:
 - (i) the tree cannot safely be felled from within the **harvest area**; and
 - (ii) the tree is felled away from the **ESA**;
- 1.4.4 **existing roads, tracks** and **drainage feature crossings** may be maintained and used in the **ESA**;
- 1.4.5 **construction** or **upgrading** of **roads, tracks** or **drainage feature crossings** in the **ESA** is prohibited unless approved by the EPA. For the trial use the existing schedule 6 process to seek approval from the EPA
- 1.4.6 any area within the **ESA** that is disturbed by a **forestry operation** must be stabilised and rehabilitated.

Riparian exclusion zones management for classified drainage lines under the IFOA Harvesting Trial

A. Conditions

1. A **riparian exclusion zone** must be retained on each side, and for the entire length of, each **classified drainage line**, with a minimum width as specified in Table 1;

Table 1 – Minimum riparian exclusion zone widths for classified drainage lines

| Drainage class | Minimum exclusion zone width (metres) | ESA Category for Ingalba and Kiwarrik IFOA trial areas |
|----------------------|---------------------------------------------|---------------------------------------------------------------|
| Drainage Line | Width of feature as determined in the field | category 1 ESA |
| 1 | 5 | category 1 ESA |
| 2 | 20 | category 2 ESA |
| 3 | 30 | category 2 ESA |
| 4 (and above) | 50 | category 2 ESA |

2. Ground protection zones on riparian exclusion zones and unmapped drainage depressions

2.1 A **ground protection zone** must be retained along:

- a) the entire length of a **riparian exclusion zone** on each side of a **first ordered drainage feature, class 1 drainage line** and **unmapped drainage line**; and
- b) each side of an **unmapped drainage depression**.

2.2 Each **ground protection zone** must have:

- (a) a minimum width of 10 metres measured from the outer edge of the **riparian exclusion zone**; or
- (b) a minimum width of 5 metres measured from each side of the centreline of an **unmapped drainage depression**.

2.3 **Machinery** must not operate in a **ground protection zone** when the soil is **saturated**.

2.4 Earthworks must not be undertaken within a **ground protection zone** except for the construction of a **drainage feature crossing**.

2.5 **Machinery** operating within a **ground protection zone** must:

- a) operate with blade up at all times except when conducting earthworks to construct a **drainage feature crossing**; and
- b) not **snig** along **unmapped drainage depressions**.

2.6 Areas within the **ground protection zone** that are disturbed by a **forestry operation** must be **stabilised** and **rehabilitated**. (see draft guidance note: Guidance on the Stabilisation and Rehabilitation of Disturbed Areas in the Ground Protection Zones of Class 1 Streams.docx)

B. Riparian exclusion zone conditions – measurement, implementation requirements and guidance

1. Classified Drainage Lines classes are shown on the relevant HPOM.
2. **Riparian exclusion zones** on a **classified drainage line**, **ordered drainage feature** or **unmapped drainage line** must:
 - 2.1. be measured along the ground surface from:
 - 2.1.1. the **bankfull level** as determined in the field; or
 - 2.1.2. where the **bankfull level** cannot be identified, from the **centreline** as determined in the field.
 - 2.2. Commence from the **channel head** for **Class 1 classified drainage lines**, and **unmapped drainage lines** as determined in the field.
3. the location of **unmapped drainage lines** must be determined in the field.
4. If a segment of a **classified drainage line** below the **channel head** is a **drainage depression**, that segment must be treated as a **classified drainage line** and the relevant **riparian exclusion zone** must be determined and applied in accordance with Table 1.

C. Riparian Condition Definitions

“Bankfull level” means the point at the top of the channel where under high flow conditions, the water level would be even with the top of the banks, or in a floodplain river, at the point just before water would spill over onto the floodplain as defined in the Australian River Assessment System: AusRivAS Physical Assessment Protocol.

“Channel” has the same meaning as a drainage line.

“Channel head” means the furthest upslope location of a drainage line.

“Drainage Depression” means a level to gently inclined shallow, open depression with a smoothly concave cross-section, rising to moderately inclined hill slopes.

“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:

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

“Ground protection zone” means a protective area where specified forestry activities may only be conducted if in accordance with relevant conditions.

“Riparian exclusion zone” means a protective area set aside on each side of a classified drainage line, ordered drainage feature and unmapped drainage line where specified forestry activities, unless excepted, are prohibited.

Other Soil and Water Protection Requirements

The conditions above describe the management of riparian exclusion zones and protection on drainage lines, drainage depressions and replace the normal IFOA approved EPA and TSL operating conditions as they apply to those features. For conditions relating to roading and snagging continue to apply the normal conditions of the EPL.

Mark-Up Surveys

Continue to apply condition 5.2 of the TSL (normal mark-up survey requirements). Assessment of alternate broad-area habitat searches will be undertaken during the trial, however these will be conducted in parallel and not replace the mark-up survey requirements for the purpose of the trial.

Site-Specific Threatened Species Conditions

If a threatened species trigger is found that does not have a relevant condition described in this variation, then seek approval from the EPA regarding what condition to apply.

Option A Treatment Area: Forestry Corporation Mark-Up

Table 2. Minimum Tree retention requirements in Regrowth Selective Zone – Kiwarrik and Ingalba SF

| <i>Element</i> | <i>Condition</i> |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Element</i> | <i>Condition</i> |
| Minimum Basal Area | Retain a minimum average basal area of 12m²/ha . |
| <i>Habitat Tree</i> | Retain a minimum of Five (5) habitat trees per hectare of NHA where available. Mark retained habitat trees in field and on MapAPP with H . Where insufficient habitat trees exist to meet the required retention rate, make-up the deficit with additional recruitment trees. Mark these additional trees with an R in the field and on MapAPP. |
| <i>Recruitment Tree</i> | Retain a minimum of Five (5) recruitment trees per hectare of NHA . Mark retained recruitment trees in field and on MapAPP with R . |
| <i>Feed Tree</i> | In addition to H and R Trees, retain a minimum of Five (5) feed trees per hectare of NHA. Mark retained recruitment trees in field and on MapAPP with E . |
| <i>Giant Tree (G)</i> | Retain all Giant trees. Mark retained Giant trees in the field with H if hollow, R if not hollow and on MapAPP with L (Large habitat tree) . |
| <i>Dead Standing Tree</i> | Do not fall dead standing trees, except as required for safety reasons. Dangerous trees should be marked in the field with ∞ and on Map App with D (dangerous tree). |
| <i>Koala Feed Trees (K)</i> | Retain a minimum of Five (5) koala feed trees per ha in Kiwarrik. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K. Retain a minimum of Ten (10) koala feed trees per ha in Ingalba. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K. |

General Tree Retention Requirements in Option A Trial Areas

1. **Habitat trees** and **recruitment trees** must be permanently retained and marked as described in Table 2 or 3.
2. Habitat, recruitment, feed trees and giant trees must be protected from forestry activities.
3. Hollow bearing trees can be retained as a recruitment tree where the habitat tree retention rates are exceeded.
4. Retention rates must be calculated and implemented for logical mark-up areas up to a maximum of 25 ha in size. These areas are to be identified and recorded during mark-up.
5. Retained trees should be a combination of scattered and aggregated within these logical mark-up areas.

6. Trees retained within wildlife habitat clumps can count towards trees retained under these tree retention conditions.
7. Accidentally fell or dangerous trees removed must be recorded during harvesting.
8. Glider sap feed trees must be retained.
9. Allocasurina trees with evidence of distinctive Glossy Black-cockatoo crushed cones feeding must be retained.

Option A: Retained Tree Definitions

Habitat Tree: Live tree with apparent hollows. Select the largest available habitat trees first.

Recruitment Tree: Live mature or late-mature tree with good potential for long-term survival. Must be selected from trees > 50 cm dbhob.

Feed Tree: Any associate tree species > 30 cm dbhob, or cone-bearing *Allocasurina* or mature *Bankisa* > 15 cm dbhob.

Giant Tree: Any tree with a DBHOB of > 160 cm.

Dead Standing Tree; A dead tree greater than 300mm diameter at breast height and greater than 3 metres in height.

Koala Feed Tree. A tree > 20 cm dbhob, with a healthy crown, from the following list of Koala primary browse species; Tallowwood, Grey Gum, Sydney Blue Gum, Swamp Mahogany, Coastal Grey Box, Forest Red Gum and any other red gum species, Cabbage Gum.

NHA – Net Harvest Area, being the portion of operational area available for logging and forest products operations. The net harvestable area does not include any exclusion areas within the operational area.

Tree Selection Guidance – Option A Areas

Habitat Trees

A habitat tree has apparent hollows when;

There is evidence of hollows, meaning hollows, holes and cavities that have formed as a result of decay, injury or other damage as trees age. 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.

Note: typically it is the combination of these deformities, in conjunction with the assessment of later mature growth stages that create sufficient evidence that a tree is likely to be hollow even when the hollows are not clearly visible.

Recruitment Trees

Recruitment tree selection should aim to deliver a range of species and a mixture of aggregated and scattered retention. Trees should be located to facilitate both good habitat development and also silvicultural and production outcomes.

Feed Tree Retention

Associate tree species are any species other than the dominant overstorey species that are typically being retained as Habitat and Recruitment trees. In stands with few associate species, additional dominant species may be retained. Selection should consider the feed tree preferences of locally occurring threatened species, for example gum-barked species for Gliders, rough barked species for Brush-tailed Phascogale, fruiting Allocasurina for Glossy-black cockatoos, winter flowering species for Swift Parrots.

Koala Feed Trees

Aim to select trees with healthy crowns. Aggregated retention of multiple koala feed trees in close proximity is encouraged and may provide a good habitat outcome.

B. Option B Treatment Area: EPA Mark-Up Tree Retention Requirements

Table 3. Minimum Tree retention requirements in Regrowth Intensive Zone – Queens Lake and Lansdowne SF

| <i>Element</i> | <i>Condition</i> |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum Basal Area | Retain a minimum average basal area of 16m ² /ha. |
| Habitat Tree | Retain a minimum of Five (5) habitat trees in every hectare of NHA where available. Mark retained habitat trees in field and on MapAPP with H. Where insufficient habitat trees exist to meet the required retention rate, make-up the deficit with additional recruitment trees. Mark these additional trees with an R in the field and on MapApp. |
| Recruitment Tree | Retain a minimum of Five (5) recruitment trees in every hectare of NHA. Mark retained recruitment trees in field and on MapAPP with R. |
| Feed Tree | In addition to H and R Trees, retain a minimum of Five (5) feed trees in every hectare of NHA. Mark retained recruitment trees in field and on MapAPP with E. |
| Giant Tree (G) | Retain all Giant trees. Mark retained Giant trees in the field with H if hollow, R if not hollow and on MapAPP with L (Large habitat tree). |
| Dead Standing Tree | Do not fall dead standing trees, except as required for safety reasons. Dangerous trees should be marked in the field with ⚡ and on Map App with D (dangerous tree). |
| Koala Feed Trees (K) | Retain a minimum of Ten (10) koala feed trees per ha in Kiwarrik. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K. Retain a minimum of Twenty (20) koala feed trees per ha in Ingalba. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K. |

1. **Habitat trees** and **recruitment trees** must be permanently retained.
2. Habitat, recruitment, feed trees and giant trees must be protected from forestry activities.

3. Hollow bearing trees can be retained as a recruitment tree where the habitat tree retention rates are exceeded.
4. The location of each retained habitat, recruitment trees feed trees and giant trees must be recorded on GPS.
5. Retention rates must be calculated and implemented in 0.2ha plots. This would involve walking every 50m and within a person's line of sight (around 20m) a pro-rata rate of trees be selected.
6. Retained trees should be a combination of scattered and aggregated within these 0.2ha areas.
7. Trees retained within wildlife habitat clumps can count towards trees retained under these tree retention conditions.
8. Glider sap feed trees must be retained.
9. *Allocasurina* trees with evidence of distinctive Glossy Black-cockatoo crushed cones feeding must be retained.

General Tree Retention Requirements in Option B Trial Areas

Habitat Tree: Live tree with apparent hollows. Select the largest available habitat trees first.

Recruitment Tree: Live mature or late-mature tree with good potential for long-term survival. Must be selected from one (1) of the (2) largest trees in any 0.2ha area

Feed Tree: Any associate tree species > 30 cm dbhob, or cone-bearing *Allocasurina* or mature *Bankisa* > 15 cm dbhob.

Giant Tree: Any tree with a DBHOB of > 150 cm.

Dead Standing Tree; A dead tree greater than 300mm diameter at breast height and greater than 3 metres in height.

Koala Feed Tree. A tree > 30 cm dbhob, with a healthy crown, from the following list of Koala primary browse species; Tallowwood, Grey Gum, Sydney Blue Gum, Swamp Mahogany, Coastal Grey Box, Forest Red Gum and any other red gum species, Cabbage Gum.

NHA – Net Harvest Area, being the portion of operational area available for logging and forest products operations. The net harvestable area does not include any exclusion areas within the operational area.

Managing Basal Area Retention Limits in Selective Harvesting Areas

1. Apply Basal Area retention limits in a manner consistent with the Silvicultural Guidelines for the Code of Practice for Private Native Forestry, noting that there is a single BA limit for each treatment area. For the purpose of the trial each
2. BA must be measured using the angle count sampling method (standard fixed point sweep)
3. All effort must be made to enable harvesting at or above the minimum BA limit for each sample sites BUT
 - a. Not expected that every location is above the BA limit
 - b. How you mark for BA retention will still need to account for stand variability

4. The PNF method will be used – it assess compliance based on an average across the stand (ie no more than half the sampling lots can be below the minimum limits)
5. The location of sampling plots will be random
6. Offsetting of BA is prohibited
7. BA sample plots do not include ESAs, or areas yet to be harvested
8. To ensure BA limits are achieved, where required, mark additional trees for retention with a **single ring** for retention.

Wildlife Habitat Clumps

The following area of net harvestable area must be established as a wildlife habitat clump exclusion zone:

Table 4. Area requiring clumps and habitat priorities for wildlife habitat clumps.

| Treatment Area | Area of clumps required (ha) | Target Number of clumps required | ESA Boundary Type | Habitat Features |
|----------------|------------------------------|----------------------------------|-------------------|---------------------------------------------------------------------------|
| Option A | 0.2 | 1 | 1 | Brush-tailed Phascogale, Koala feed trees, hollow-bearing trees and stags |
| Option B | 0.25 | 1 | 1 | |

1. For each 100 ha of clumpable area, 3.2 percent of the area must be protected as habitat clumps. Minimum area of clumps for each site is shown in Table 4.
2. Each wildlife habitat clump must be: larger than 0.1 hectares in size; and
3. Wildlife habitat clumps must be dispersed across the net harvest area, including along ridgelines, mid-slopes and gullies.
4. For each wildlife habitat clump selected for protection, at least one environmental feature used to select the clump must be recorded that describes the reason for its establishment.

Wildlife Habitat Clump Guidance:

1. **Features that clumps and 20% biodiversity offsets are designed to protect:**
 - a) **Habitat** for threatened species such as Koala, Spotted-tailed Quolls, Squirrel Gliders, Brush-tailed Phascogales, Glossy Black-cockatoos, Black-striped wallaby.
 - b) **Habitat elements such as areas** of dense understory; fruiting and flowering banksias or grass-trees; areas with high-densities of coarse woody debris; previously unmapped rocky outcrops, wetlands, heath and scrub; individual giant trees or other large hollow-bearing trees; groups of multiple hollow-bearing trees or mature forest; groups of sap feed trees; stands of Allocasurina; nest, den or roost sites; and threatened plant records.
 - c) **Habitat connectivity** – helping improve landscape connecting between other retained patches of vegetation or as habitat islands within a large cutover area.

2. **Clump size:**

- a) The design of clump size must consider the extent of the feature being protected.
- b) Small sized clumps (0.1-0.2 ha) are suitable for small features such as individual trees or small habitat patches;
- c) Larger clumps, 0.5 ha and above are suited to larger habitat patches and habitat islands.

3. **Clump Location:**

- a) Selection of habitat for inclusion in clumps should be considered in a local landscape context, in particular reviewing the environmental features available and priorities for inclusion in protection areas.
- b) Clumps must be dispersed through the range of habitat types and topographic positions that occur within the net harvest area of the planning area.
- c) As clumps are a category 1 ESA the practicality of ensuring forestry operations do not impact on clumps is an important consideration.
- d) Placing clumps adjacent drainage feature protection or other exclusion zones in steeper and/or narrow areas is encouraged as this reduces likelihood of incursions.
- e) In flat areas and areas with few exclusion zones placement of clumps as habitat islands is encouraged.
- f) Individual clumps that protect multiple habitat features are encouraged.

Wetland Protection

2. An exclusion zone must be retained around all **wetlands** and **major water storages** with a minimum width as specified in Table 7. For the purpose of applying Table 7;

- (i) the presence of the **wetland** must be verified in the field;
- (ii) the surface area of a **wetland**, and the associated **wetland** exclusion zone, must be measured from either:

the edge of the **current saturated zone**, or

the outer edge of where the vegetation type indicates a wetter micro-environment than the surrounding country,

whichever results in a larger surface area;

- (iii) the width of the **wetland** exclusion zone must be measured along the ground surface and must be determined in the field; and

3. if a **wetland** exclusion zone for a **major water storage** extends beyond the catchment of the **wetland** it is protecting, the exclusion zone may be terminated at the catchment boundary.

Table 1 – Minimum exclusion zone widths for wetlands and major water storages

| Feature Type | Size of the surface area | Wetland Exclusion Zone (metres) |
|----------------------------|---------------------------------|----------------------------------------|
| <i>wetland</i> | Less than 0.5 ha | 10 |
| <i>wetland</i> | Between 0.5 to 2.0 ha | 20 |
| <i>wetland</i> | Greater than 2.0 ha | 40 |
| <i>SEPP 14 wetland</i> | All | 40 |
| <i>major water storage</i> | All | 100 |

“Wetland” means:

- a. all areas of SEPP 14 wetlands
- b. any 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 and
- c. soaks, seepages and bogs larger than 0.1 ha.

Bird Roost and Nest Protection

Category 1 ESAs must be applied around the nest, roosts and associated exclusion zones as specified in Table 1:

Table 1 – Nest and Roost Protection

| 25m radius | 50m radius | 100m radius |
|-----------------------------------------------------|-------------------------------------|-------------------------|
| Regent Honeyeater nest | Powerful Owl nest | Bush Stone- Curlew nest |
| Varied Sittella nest | Masked Owl nest | Albert's Lyrebird nest |
| Gang-gang Cockatoo nest | Barking Owl nest | |
| Brown Treecreeper nest | Sooty Owl nest | |
| Black-chinned Honeyeater (eastern sub-species) nest | Flame Robin nest | |
| Speckled Warbler nest | Scarlet Robin nest | |
| Diamond Firetail | Hooded Robin nest | |
| Grey-crowned babbler | Glossy- black Cockatoo nest | |
| Powerful Owl roost | All stick nests (greater than 50cm) | |
| Masked Owl roost | | |
| Barking Owl roost | | |
| Sooty Owl roost | | |
| Turquoise Parrot nest | | |
| Little Lorikeet nest | | |

Threatened Frogs - General

1. A 10 metre wide *exclusion zone* must be applied around all dams.
2. Any *newstream crossing* that is located within 200 metres upstream or downstream of a *stream breeding threatened frog record* must not alter natural stream flow.



Scale 1:125,000

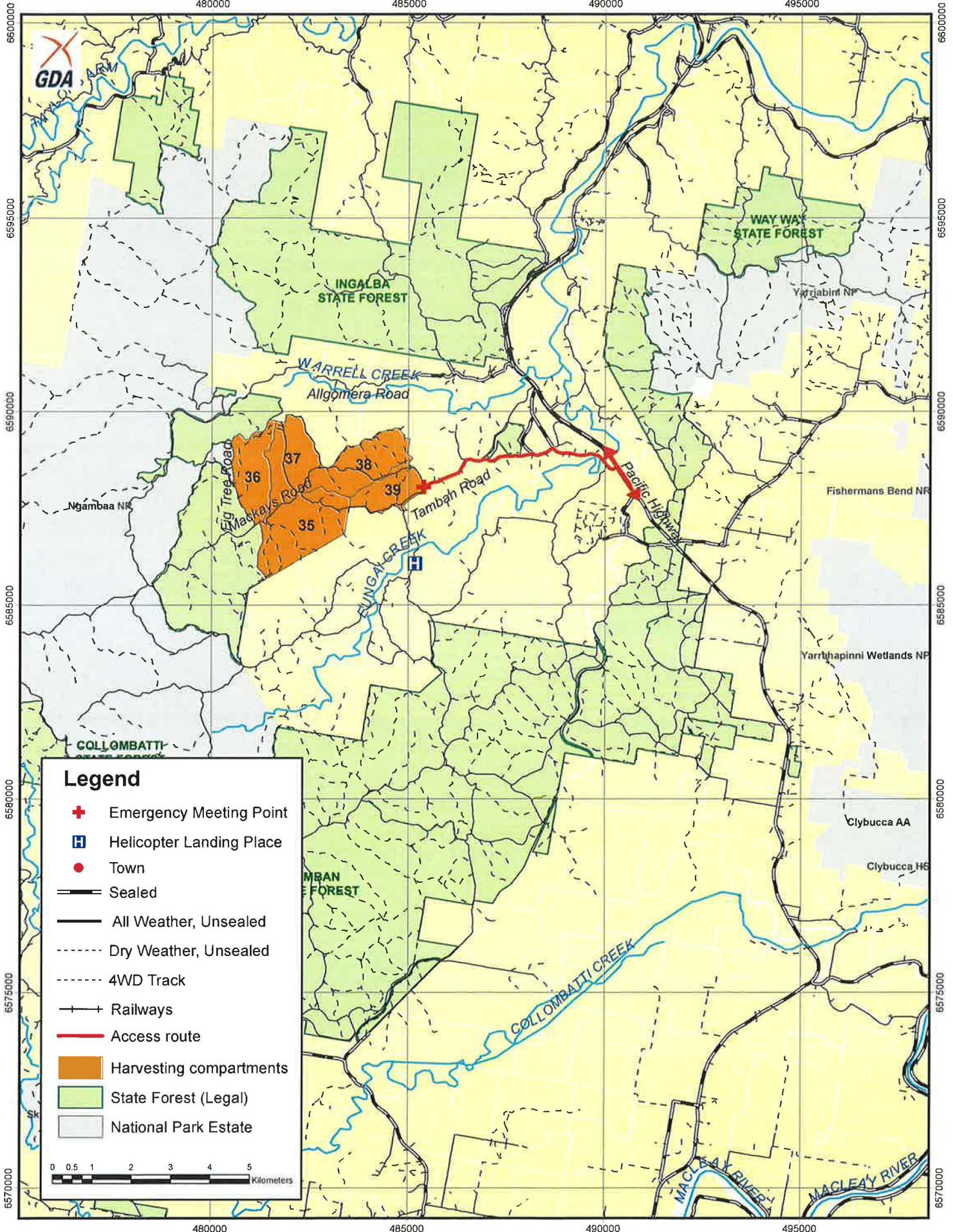
Datum: GDA94

Map Sheets

1:25,000; Eungai 9436-2N

1:100,000; Macksville 9436

Central Region - KempseyMA Locality Map Compartments 35, 36, 37, 38 & 39 Ingalba State Forest





Harvest Plan Operational Map

Compartments 35, 36, 37, 38 & 39

Ingalba State Forest

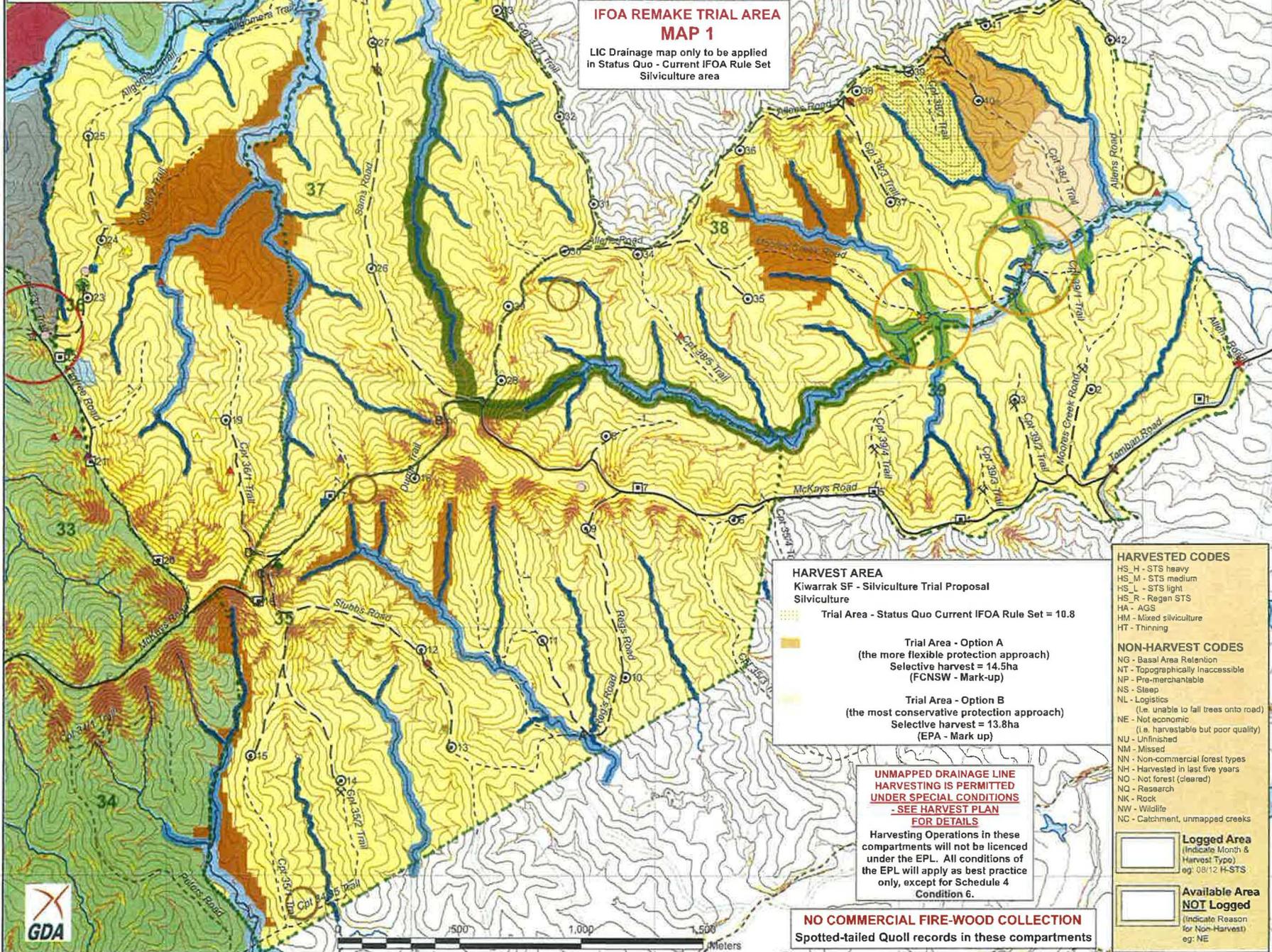
Central Region - Kempsey Management Area



Approval Date: 19/03/2015
Controlled Map: Ingalba35_39_HPOM.pdf
Amended for IFOA Trial - July 2015
Controlled Map:
Ingalba35_39_HPOM_IFOA_Trial_LIDAR_LIC_Map1

Scale: 1:15,000
Datum: GDA94
Projection: MGA
Map Sheets:
1:25,000 Eungai 9436-2N
1:100,000 Macksville 9436
Contour Interval: 10m

IFOA REMAKE TRIAL AREA
MAP 1
LIC Drainage map only to be applied
in Status Quo - Current IFOA Rule Set
Silviculture area



- ### MAP FEATURES
- State Forest Boundary
 - Compartments Boundary
 - 1 Km Grid
 - 10m Contour (LIDAR derived)
 - State Forest
 - Private Property/Cadastre boundary
 - Slopes >30° Indicative (LIDAR)
 - Slopes 25-30° Indicative (LIDAR)
 - Emergency Meeting Point
 - Dangerous tree location
 - Water Bodies
 - Elite/Plus Tree
 - Previous Mining Site - do not damage
 - Approximate location Telstra cable
 - Road Reserve (Tamban Road)
 - Dispersible soils

- ### ROADS, DUMPS & CROSSINGS
- Wet weather, unsealed
 - Dry weather, unsealed
 - Not to be used for haulage
 - Roads outside harvest area
 - Dry weather dump
 - Wet weather dump
 - Approved Crossing

HARVEST AREA & EXCLUSION ZONES
(Inherent Hazard Class 1 - cpt 39 & Inherent Hazard Class 2 - cpts 35-38)
Harvest Area
General Management (FMZ 4 and 8)

- ### Exclusions
- National Park Estate
 - Research Trial
 - Dam - 10 buffer

- ### Modified Harvest Area
- (See Harvest Plan for details)
 - 4 Bar Exclusions**
Rainforest - Crafti + RN17
 - 3 Bar Limited Felling**
High Conservation Value Old Growth
Ridge & Headwater Habitat (80m wide exclusion)

- ### Drainage features
- Spatially corrected LIC drainage (LIDAR)
- Drainage line (5m Operational Zone)
 - 1st Order (Protection 10m)
 - 2nd Order (Protection 20m)
 - 3rd Order (Protection 30m)
 - 4th order & above (Protection 50m)

- ### Threatened Species Records
- Records requiring prescription
- Green-highed Frog - *Litoria brevipalmata* - 30m exclusion
 - Giant Barred Frog - *Mixophyes iteratus* - 30m wide exclusion on both sides of all streams within 200m, and no UMDL logging within 200m
 - Golden-legged Bat - *Kerivoula papuensis* - 30m wide exclusion on both sides of all 1st & 2nd order streams within 200m, and no UMDL logging within 200m of record
 - Yellow-bellied Glider - *Petaurus australis* - 200m radius MHA - retain 15 feed trees
 - Glossy Black-Cockatoo - *Calyptorhynchus lathami* - Retain feed trees
 - Milky Stilkpod - *Parsonia dorrigoensis*
- Records with no condition
- Koala
 - Spotted-tailed Quail - No Commercial Firewood Collection

HARVEST AREA
Kiwarrak SF - Silviculture Trial Proposal
Silviculture

Trial Area - Status Quo Current IFOA Rule Set = 10.8

Trial Area - Option A
(the more flexible protection approach)
Selective harvest = 14.5ha
(FCNSW - Mark-up)

Trial Area - Option B
(the most conservative protection approach)
Selective harvest = 13.8ha
(EPA - Mark up)

- ### HARVESTED CODES
- HS_H - STS heavy
 - HS_M - STS medium
 - HS_L - STS light
 - HS_R - Regen STS
 - HA - AGS
 - HM - Mixed silviculture
 - HT - Thinning

- ### NON-HARVEST CODES
- NG - Basal Area Retention
 - NT - Topographically Inaccessible
 - NP - Pre-merchantable
 - NS - Steep
 - NL - Logistics (i.e. unable to fall trees onto road)
 - NE - Not economic (i.e. harvestable but poor quality)
 - NJ - Unfinished
 - NM - Missed
 - NN - Non-commercial forest types
 - NI - Harvested in last five years
 - NO - Not forest (cleared)
 - NR - Research
 - NK - Rock
 - NW - Wildlife
 - NC - Catchment, unmapped creeks

Logged Area
(Indicate Month & Harvest Type)
eg: 08/12 H-ST5

Available Area NOT Logged
(Indicate Reason for Non-Harvest)
eg: NE

UNMAPPED DRAINAGE LINE HARVESTING IS PERMITTED UNDER SPECIAL CONDITIONS - SEE HARVEST PLAN FOR DETAILS

Harvesting Operations in these compartments will not be licenced under the EPL. All conditions of the EPL will apply as best practice only, except for Schedule 4 Condition 6.

NO COMMERCIAL FIRE-WOOD COLLECTION
Spotted-tailed Quail records in these compartments



481000

482000

483000

484000

485000

Scale: 1:15,000
 Datum: GDA94
 Projection: MGA
 Map Sheets:
 1:25,000 Eungai 9436-2N
 1:100,000 Macksville 9436
 Contour Interval: 10m

Harvest Plan Operational Map
Compartments 35, 36, 37, 38 & 39
Ingalba State Forest
Central Region - Kempsey Management Area

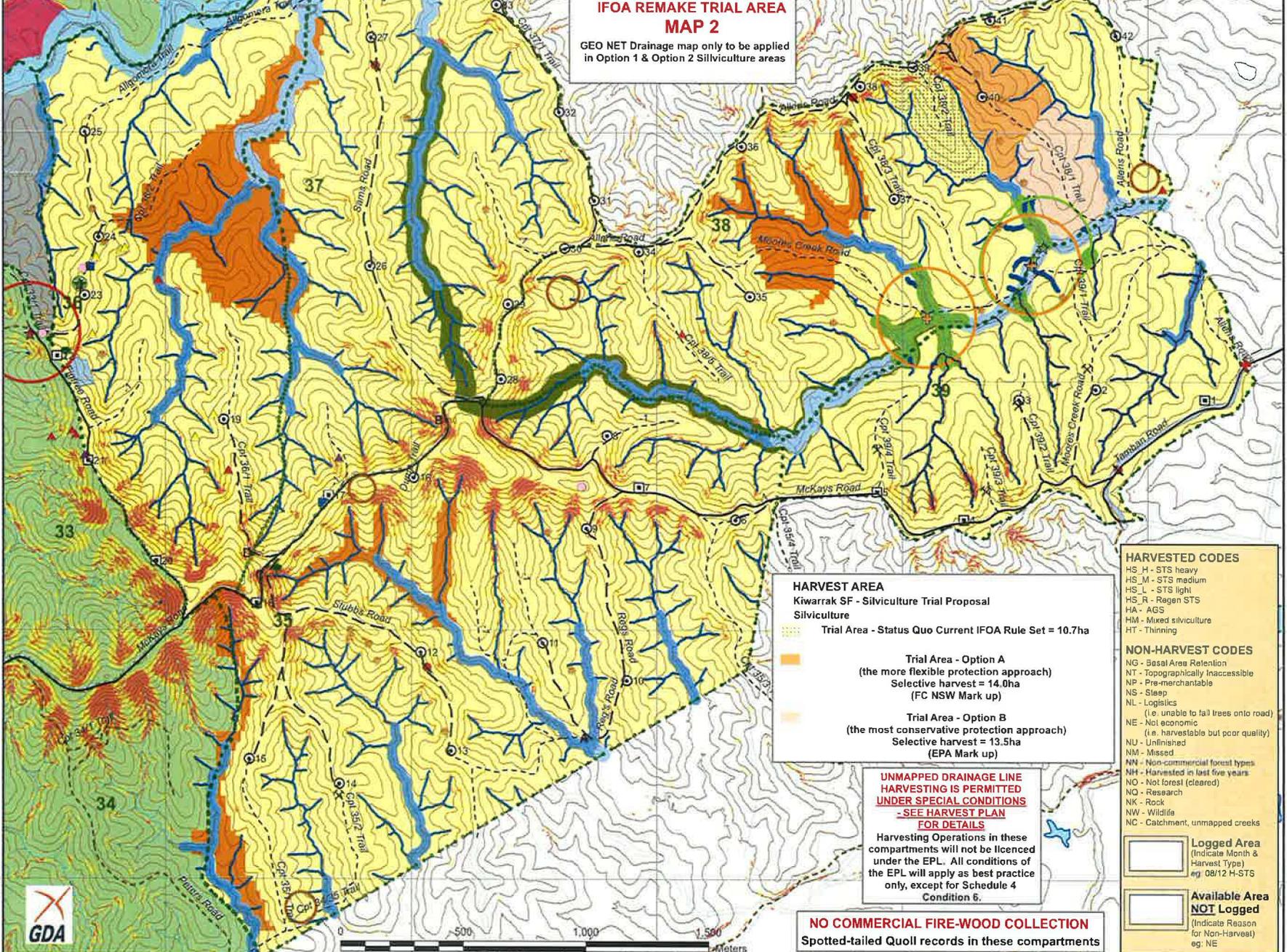


Approval Date: 19/03/2015
 Controlled Map: Ingalba35_39_HPOM.pdf
 Amendment for IFOA Trial - July 2015
 Controlled Map:
 Ingalba35_39_HPOM_IFOA_Trial_GEONET_Map2



Prepared by Sarah Gormley
 Date: 19 March 2015
 Updated by IFOA Trial
 & Bailey July 2015

IFOA REMAKE TRIAL AREA
MAP 2
 GEO NET Drainage map only to be applied
 in Option 1 & Option 2 Silviculture areas



- MAP FEATURES**
- State Forest Boundary
 - Compartments Boundary
 - 1 Km Grid
 - 10m Contour (LiDAR derived)
 - State Forest
 - Private Property/Cadastre boundary
 - Slopes >30° Indicative (LiDAR)
 - Slopes 25-30° Indicative (LiDAR)
 - Emergency Mooring Point
 - Dangerous tree location
 - Water Bodies
 - Elite/Plus Tree
 - Previous Mining Site - do not damage
 - Approximate location Telstra cable
 - Road Reserve (Tambora Road)
 - Dispersible soils

- ROADS, DUMPS & CROSSINGS**
- Wet weather, unsealed
 - Dry weather, unsealed
 - Not to be used for haulage
 - Roads outside harvest area
 - Dry weather dump
 - Wet weather dump
 - Approved Crossing

HARVEST AREA & EXCLUSION ZONES
 (Inherent Hazard Class 1 - cpt 39
 & Inherent Hazard Class 2 - cpts 35-38)
Harvest Area
 General Management (FMZ 4 and 8)

- Exclusions**
- National Park Estate
 - Research Trail
 - Dam - 10 buffer
- Modified Harvest Area**
 (See Harvest Plan for details)
- 4 Bar Exclusions**
 Rainforest - Craft + RN17
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- Records with no condition**
- Koala
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HARVEST AREA
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 Silviculture

Trial Area - Status Quo Current IFOA Rule Set = 10.7ha

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 (the more flexible protection approach)
 Selective harvest = 14.0ha
 (FC NSW Mark up)

Trial Area - Option B
 (the most conservative protection approach)
 Selective harvest = 13.5ha
 (EPA Mark up)

UNMAPPED DRAINAGE LINE
HARVESTING IS PERMITTED
UNDER SPECIAL CONDITIONS
 - SEE HARVEST PLAN
 FOR DETAILS

Harvesting Operations in these compartments will not be licenced under the EPL. All conditions of the EPL will apply as best practice only, except for Schedule 4 Condition 6.

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 Spotted-tailed Quoll records in these compartments

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 - NW - Wildlife
 - NC - Catchment, unmapped creeks

Logged Area
 (Indicate Month & Harvest Type)
 eg 08/12 H-STG

Available Area NOT Logged
 (Indicate Reason for Non-Harvest)
 eg: NE

