

FORESTS NEW SOUTH WALES CENTRAL REGION

NATIVE FOREST HARVESTING PLAN

Styx River State Forest – Compartments 525, 526, 527

Certification

This plan has been prepared in accordance with the Integrated Forestry Operations Approval issued under the Forestry and National Park Estate Act 1998.

Prepared by: Ken Drew Harvest Planner	Reviewed by: Brent Bailey Harvest Planning Team Leader	Approved by: Kathy Jones Regional Manager
Signature: 	Signature: 	Signature: 
Date: 22/02/13	Date: 22/2/13	Date: 14/3/13.

Note: Approval encompasses the Harvest Plan Operational Map (HPOM) with the corresponding approval date displayed on the map, verifying final approved version.

Description of Proposal

This native forest timber harvesting plan aims to:

1. Provide the means by which native forest timber can be efficiently and effectively harvested in accordance with the requirements of the Integrated Forestry Operations Approval (IFOA).
2. Describe the silviculture objectives and constraints that will apply to this operation to ensure appropriate treatment of the forest to achieve object number 1 and to provide for the regeneration of the forest where required.
3. Outline the critical boundaries and modified harvest practices that are to apply to safeguard environmental values, neighbouring properties, State forest or other tenures.
4. Provide a succinct summary of the key features of all aspects of the harvesting operation so as to inform and guide harvest contractors and Forest NSW personnel during the undertaking of forestry activities.

Environment Protection Licence (EPL)

This operation will not be licenced under the EPL, therefore:

1. Unmapped Drainage Line harvesting is permitted. However, as best practice all conditions of the EPL will be applied to this operation with the exception of Schedule 4 Condition 6 relating to filter strips on unmapped drainage lines.
2. Commencement and cessation notifications under the EPL are not required.

Attachment 1: Site Safety Plan prescribes describes safety requirements and MEEP for this harvesting operation.

Attachment 2: A separate road works plan outlines roading requirements for this harvesting operation.

Attachment 3: Central Region Standard Operating Conditions for Native Forests Operations under the IFOA

Attachment 4: Notes for the Identification of the Flame Robin, notes for the Identification of the Blacked chinned Honeyeater and notes for the Identification of the Brown Tree Creeper, Notes for the Identification of the Flame Robin.

Area identification and yield estimates

State Forest	Compartments	Region	Management Area	Price Zone	Harvest Plan ID
Styx River	525, 526, 527	Central	Styx River	Styx River	10356

	Cpt 525 (Native)	Cpt 526 (Native)	Cpt 527 (Native)	Total
Plan Cpt ID	20203	20204	20205	
Gross Area	390 Ha	209 Ha	387 Ha	986 Ha
Net Harvest Area	349 Ha	186 Ha	351 Ha	886 Ha
Estimated Yield	10820m ³	8930m ³	12630m ³	32380m ³

Special Conditions

Critical boundaries

Northern, Eastern and Western boundaries are bound by State Forest. Southern boundary joins Cunnawarra National Park. This boundary is separated by Styx River Forest Way. Harvesting operation will not impact on National Park.

Research / Inventory Plots

A search of the regional Research, PGP and Plus Tree GIS databases found no Research or Inventory Plots in this compartment. If any elite trees or research plots are identified during markup the SFO must get approval from the planner or resources officer before harvesting commences in those areas.

Hunting Declared within State Forest

Styx River State Forest has been declared as a hunting area under the conservation hunting on Public Land initiative managed by the NSW Game Council. Only accredited, licensed hunters may apply for permission to hunt certain species of introduced game and feral animals on declared State forests and Crown Lands. Harvesting compartments are no longer excluded for areas available for hunting, so signs should be considered for use as a control as required.

SFO Notes

A revised SFO notes page has been incorporated into this plan. This page should be used in recording operations under unmapped drainage line prescriptions

Recreational Visitors

Styx River Forest Way and associated trails are at times frequently used by walkers, horse riders and trail bike riders. The SFO must ensure that all trails and potential access points to the harvest area are signed appropriately to protect the safety of the public. The contractor is responsible for inducting all visitors to the worksite.

A popular unofficial walking route promoted by the New England Eco Tourism Society Incorporated follows Styx River Forest Way and internal trails associated with these compartments. Care should be taken not to damage any steel posts capped with reflective orange plastic sleeves (route markers) found along this route. The SFO must ensure that any posts removed during harvest are replaced in the same location immediately following harvest. Any damage to route markers should be reported to the harvest planner. SFO to ensure trail remains walkable after harvesting and all dangerous trees and debris as a result harvesting is removed

Modified Harvest Area

Section of Loop Road (See HPOM north for location) passes through a Modified Harvest Area and has a 10m Buffer around it. Road works within this buffer zone is limited only to the road running surface and Harvesting is excluded from 10m buffer zone.

Silviculture and harvesting prescriptions

Compartment History

Compartment history records are very limited for these compartments giving only one account of previous harvesting and silviculture activities taking place around the mid 1980's. Harvesting operation went through compartments removing poor quality over-mature and mature stems with a plan to retain good quality regrowth stems.

Compartment history has no indication that fires have taken place in this compartment. Field inspections indicate that a recent fire have taken place in this compartments

Silvicultural Planning

Number of harvesting operations remaining in the WSA period (excluding this event)	0
Next anticipated harvesting operation	2030
Enrichment Planting	No

Stand type	% of net area	Example	Treatment (%STS,AGS,THIN)
New England Blackbutt Messmate, Manna Gum, Fastigata	60%	These stands can be found throughout all compartments	Single Tree Selection (STS) Removal of merchantable mature stems & poorer quality merchantable stems >40cm DBHOB. Remove poorer quality stems <40cm DBHOB. Retain good quality stems 40cm and less.
Manna Gum, New England Blackbutt	30%	These stands can be found sporadically in clumps in these compartments	Single Tree Selection (STS) Removal of merchantable mature stems & poorer quality merchantable stems >40cm DBHOB. Remove poorer quality stems <40cm DBHOB. Retain good quality stems 40cm and less.
Poor quality Manna Gum, New England Blackbutt, Fastigata	10%	Mainly along northern section of Eely Creek in compartments 526 and 527	Single Tree Selection (STS) Removal of merchantable mature stems

Max. number of AGS openings	Nil
Thinning BA limit (60%)	N/A
STS BA limit (40%)	Will not be reached due to retained growers within the stand, and area's of non merchantable sections and inaccessible steep areas throughout the compartment

Future Treatment

Consideration should be given to a light post harvest burn following the completion of harvesting in these blocks. However if fuel and weather conditions do not facilitate a light post harvest burning consideration should be given to additional mechanical disturbance in areas with no visible seed fall or reduced numbers of retained trees.

Forest Management Zoning

Forest Management Zoning and Approvals

These compartments contain the following FMZ's;

Zone	Management
FMZ 2 (Informal Reserve)	Which is a Reserve. Harvesting is excluded from these areas
FMZ 3A (Harvest Exclusion Zone)	Which is mainly Old Growth. Harvesting is excluded from these areas
FMZ 4 (General Harvesting Prescription)	Which is available for harvesting. Normal prescriptions apply
FMZ 8 (Further Investigation)	The FMZ 8 areas occur as modelled stream exclusion zones and can be harvested and managed under normal harvesting prescriptions and EPL prescriptions <i>not displayed on HPOM</i>

Cultural heritage

An Aboriginal site survey was performed by Forests NSW Aboriginal Cultural Heritage officer in August 2012.

Old Cattle Yards exist within compartment 527 on Ron's Yard Trail. These yards require protection from damage during harvesting.

There are no other known sites of European heritage within these compartments.

Flora and Fauna – Refer to TSL Booklet for Conditions

Refer to the Threatened Species Licence (TSL) Booklet for Conditions.

General TSL Prescriptions

- **SFO Mark Up Searches** – Conditions 5.1(h), 5.2 and 5.13 (general, koala and bird roost and nest searches) must be implemented. No Koala star search triggers identified during pre-logging surveys.
- **Tree Retention** – Non-regrowth Zone. Conditions 5.6 (c), (d), (e), (f) and (g), 6.9 (d) Greater Glider must be applied - Glossy Black Cockatoo feed trees.
- **Riparian Habitat Protection** – Condition 5.7 must be applied. See reference to patch of Antarctic Beech.
- **Ground Habitat protection** – Condition 5.17. No commercial firewood collection permitted in these compartments (Quoll, Brown Treecreeper records)

Site-Specific Conditions, Exclusion Zones & Modified Harvest Areas

Mapped exclusion areas occur for the following. Site-specific conditions must be implemented

Boundary Type	TSL Condition Number	Prescription Name	Prescription Summary
3, Machinery	5.13	Flame Robin	Mapped Exclusion 50m on nest site
3, Machinery	5.13	Scarlet Robin	Mapped Exclusion 50m on nest site
3, Machinery	5.13	Brown Treecreeper	Mapped Exclusion 20m on nest site
3, Machinery	6.03	Giant-barred or Stuttering Frog	Mapped exclusion, 30 m buffer on mapped streams within 200 m of a records and no UMDL within 200m of a record. Revert to 10m UMDL EPL protection
3, Machinery	6.25	Threatened Flora	Mapped exclusion, 20 m buffer on 90% of individuals: <i>Gastrodia sesamoides</i>

HARVEST PLAN – Compartments 525, 526 and 527 Styx River State Forest

3, Machinery	6.21 / 7b)xv	Large-footed Myotis	30m buffer on dams and permanent waterbodies
4, Limited	5.03	HCVOG	Mapped Exclusion
4, Limited	5.08	Ridge and Headwater Habitat	Mapped Exclusion
4, Limited	6.09	Owl Landscapes	Mapped exclusion - Styx North Planning Unit - exclusion embedded in HCVOG

TSL Boundary Conditions

Boundary Type	Can Remove accidentally felled logs if at least one HQ log (1)	Groundcover Rehab/Removal Rules	Machinery entry 5m to fell HQ log in NHA away from protection zone (2)	6/200 Rule (3)
SOLID				
MACHINERY			√	
ACCIDENTAL	√	√		
LIMITED	√	√	√	√

√ - Condition applies

(1) Tree Removal Rules

- An accidentally felled tree may be removed with minimal disturbance if the tree contains a high quality log.
- The crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester.
- Harvesting machinery that has entered the Exclusion zone for the purpose of felling a tree within the net logging area may also be used to remove a tree that has been felled into the Exclusion zone.
- However, the wheels or the tracks of the harvesting machinery may not (to any significant extent) be repositioned or moved solely for the purpose of removing the tree felled into the Exclusion zone

(2) Rehabilitation Requirements

- Soil disturbance must be infilled with soil (furrows); drained onto a stable surface capable of handling concentrated water flow and at least 70% ground cover must be achieved within 5 days of the creation of the furrow.
- Machinery may be used where the tracks or wheels of the harvester remain outside Exclusion zone.

However, if a harvesting machine has already entered the forest (to fell trees away from the forest or zone), it may be also be used for rehabilitating the disturbed ground or soil.

(3) Machinery entry (5m) rules

Harvesting machinery is permitted to operate in an Exclusion zone for the purposes of felling a tree within the net logging area that contains a high quality log where:

- The technique of directional felling could not be used to fell the tree so that it falls outside the Exclusion zone;
- The only practicable method of felling that is to enter the Exclusion zone;
- The tree is felled away from the Exclusion zone;
- The wheels or tracks of harvesting machinery remain wholly within 5 metres of the boundary of the Exclusion;
- The use of the harvesting machinery only involves the use of walkover techniques and minimal ground disturbance

(4) 6 trees/200m Rule

- The felling of trees across the boundary of an Exclusion zone is prohibited except where no more than six trees containing high quality logs are felled across the boundary in any 200 metre length of the boundary of Exclusion zone, whatever 200 metre length of boundary is considered.
- Accidentally felled trees do not count toward the 6/200 rule and may be remove where they contain a HQL
- Trees fallen under 6/200 rule must be felled in such a way so as to avoid damage to trees growing in the Exclusion zone.

(5) Exclusion Zones – General Conditions

- A road and snig track may be constructed and used in the above Exclusion zones only with the prior written approval of the Regional Manager, if permitted under the TSL. The SFO must notify the Supervising Forester of the need for any roads/tracks crossing areas.
- Hollow bearing trees are not to be used as pivot or bumper trees for the purposes of snig track construction or snigging on approved tracks within any exclusion.
- The construction and use of snig tracks and roads in HCVOG, RNCFT and Rainforest where overlaid by threatened species exclusion zones is only permitted with the prior written approval of DEC. Snigging is not permitted through Ridge and Headwater Habitat. Except on existing trails or snig tracks with vegetation less 20 cm diameter.

Soils and Water Protection – Refer to EPL Booklet & Standard Plan Conditions.

Site-specific EPL conditions

Element	Conditions
Unmapped Drainage Lines	Best Management Practices for Unmapped Drainage Lines apply
Drainage Feature Protection	See HPOM for widths
Inherent Hazard Class	IHL 1
Dispersible Soils	No
Mass Movement	No
Seasonal Harvesting Exclusions	Nil
Seasonal Burning Exclusions	Nil
Log Dumps	Refer relevant conditions for IHL 1: Conditions 26, 27, 30.
Roads	See schedule 5 of EPL Booklet

Snig and Extraction Tracks

Element	Schedule 4 EPL Conditions
Technique	Conditions 38-40 Schedule 4 EPL
Drainage	Conditions 70-80 Schedule 4 EPL
Crossings	Conditions 42-68 Schedule 4 EPL Condition 5.7 TSL
Downhill Snigging	Condition 82 Schedule 4 EPL
Wet Weather	Condition 81 Schedule 4 EPL
Grade	Max grade must not exceed 25° except for short sections under certain circumstances. Refer to Condition 41 Schedule 4 EPL
Rutting	Max allowed soil disturbance Snig/Extraction tracks = depth 20cm / Length 10m (Forest Practices Circular 2008/4)

Legal Conditions

This operation must comply with:

- Standard Harvest Plan Condition for Native Forest Operations in Central Region
- Licence Conditions issued by Forests NSW under the Forestry Act (1916)
- State Forests of NSW Forest Practices Code - Part 2 Timber Harvesting in Native Forests 1999 and Forest Practices Code Part 4 Forest Roads and Fire Trails (1999).
- Integrated Forestry Operations Approval issued under part 4 of the Forestry and National Parks Estate Act 1998 (IFOA) as amended May 2003 including associated licences for Lower North East Region.
 - Threatened Species Conservation Licence (TSCL) issued under the Threatened Species Conservation Act (1995) as amended May 2003
 - Part 7 (Div 3) Fisheries Management Act (1994) as amended May 2003
- This operation is a non-scheduled operation under the Environment Protection Licence issued under section 55 of the Protection of the Environment Act 1997. This Harvesting operation including the roads and trails associated with harvesting are not licensed. All EPL conditions will be applied to harvesting operations, except for schedule 4 condition 6 relating to filter strips on unmapped drainage lines. The Best Management Practices detailed in Standard Harvest Plan Condition for Native Forest Operations in Central Region are to be applied to unmapped drainage lines.

Pre-Operational Briefing

I acknowledge that I have received a copy of the Harvesting Plan for Compartments 525,526 and 527 in Styx River State Forest and that I have been briefed on the conditions of the Plan and understand the supervision and operational control requirements as explained to me by the Forest Planner or his/her delegate.

Position	Name	Signature	Date

SFO Post Logging NOTES

LOCATION SF: _____

CPT NO: _____

Record any circumstances of significance relating to the harvesting of this compartment. Please draw or include any annotations on an attached operation scale map.

Actual area harvested (record on map)

Give reasons for harvestable areas that were not harvested (e.g. Too steep, defective timber). Make reference to map.

Silvicultural treatment undertaken;

Treatment	Area Treated	Number of AGS gaps	Comments
Australian Group Selection			
Single Tree Selection			
Thinning			

Possible next cut (tick appropriate boxes)

Main product type	Anticipated volume		
	H	M	L
High quality large sawlog			
High quality small sawlog			
Low Value			
Poles/piles/girders			
Veneer			
Pulpwood/chipwood			
Habitat			
Non-merchantable			

Time to next harvest
0 to 5 years
5 to 10 years
10 to 20 years
20 to 30 years
30 plus years

Noxious or environmental weed problems; high levels of feral animal use.

Sites of soil erosion for attention.

Boundary compromised; neighbour issues resulting from logging or haulage.

Operation map errors for attention (e.g. forest type; roads) of appropriate staff i.e. GIS, Planner etc.

Brown Treecreeper

Climacteris picumnus victoriae
(Eastern subspecies)

Vulnerable species

MAJOR IDENTIFYING FEATURES

The largest of the Treecreepers – 16–18 cm. Head and nape grey-brown, with buffish eye-stripe and dark-streaked buff ear-coverts. Back brown. Throat white. Breast grey with obscure black marks (♂), obscure pale chestnut marks (♀). Remainder of underparts white, densely streaked, barred on undertail coverts. Tail earth-brown with a subterminal black band on all but the central pair of feathers.

NOTES

Communal and sedentary. Pairs or groups of up to six hold the same large territory of about 5–10 ha year round and spend about half their foraging time feeding in the litter on the open ground, and also on fallen logs and tree trunks. Beetles, bugs and larvae are eaten, but the main food is ants.

Each local group comprises a breeding pair and one or two subordinate males. Breeding season is from June–December. Nest is a cup of dried grass, bark and dung, and placed in a hollow limb or trunk. Eggs 2–3, 23 x 18 mm, pale pink, densely spotted and blotched with red-brown and underlying lavender

CONFUSING SPECIES

Other Treecreepers in this area lack the buff eye-stripe.

HABITAT

Drier open forest and woodland clearings, riverine woodland.

DISTRIBUTION

Eastern mainland Australia.



Brown Treecreeper

Black-chinned Honeyeater

Melithreptus gularis gularis
(Eastern subspecies)

Vulnerable species

MAJOR IDENTIFYING FEATURES

Small drab honeyeater 15—17 cm. Sexes alike. Black forehead and crown, white bar across upper nape, and black patches through eyes and over cheeks extending and meeting across back of nape in a small bar. Small black throat patch, with white moustachial streaks broadening below eye. Bare blue skin over eye. Upper parts brown, tinged olive. Underparts pale grey-buff. Short wedge-shaped bill. This genus spends more of its time gleaning in foliage and on branches than in rifling blossom for nectar.

NOTES

Sedentary, forming small colonies of 2—12 individuals – rarely more. However territories are large and birds often appear nomadic. When foraging, the species moves quickly from tree to tree, mainly eucalypts, working rapidly along outer twigs, the underside of branches and even trunks, probing in crannies and under bark for insects. Much honeydew is also gleaned from foliage in summer.

Breeding season July—December. Nest is a deep felt-like cup of grass and bark strips closely woven with spider web and down. Eggs 1—2, 22 x 16 mm, salmon pink, spotted sparsely with chestnut and red brown, mostly at the larger end.

CONFUSING SPECIES

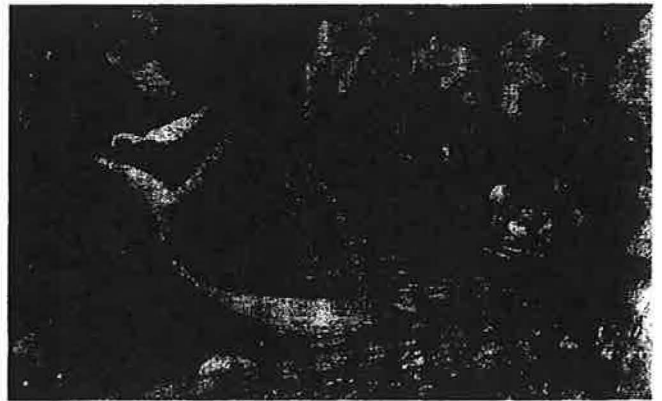
White-naped Honeyeater has a red skin patch above eye.

HABITAT

Open woodland, often eucalypt, tall scrub, riverine woodland.

DISTRIBUTION

Open eucalypt woodland and fringing forest and desert scrub, mainly along western slopes of the Great Dividing Range.



Black-chinned Honeyeater

Flame Robin

Petroica phonicea

Vulnerable species

MAJOR IDENTIFYING FEATURES

Small Robin 12.5 – 14 cm.

Male: Dark grey upper parts with small white patch over beak, flame red chest and throat.

Female: Pale brown above with small white patch over beak, buff-white angled shape on wing.

NOTES

They can often be seen perching in prominent positions on fence posts, stumps, open branches.

Most often seen in pairs in Spring & summer but can be part of multi-species foraging parties in autumn & winter.

Breeding season is from August to January.

Nests are rough bulky cup of bark, spider web, moss, lichen, in tree cavity, broken tree fork, rock fissure, woodpile or shed.

CONFUSING SPECIES

Scarlet Robin – Flame Robin is more orange in colour and grey head rather than black, female has no tinge of orange/red on chest, smaller white patch above beak than Scarlet Robin.

HABITAT

Forests, woodlands, open woodlands, plains, paddocks, golf courses, parks.

DISTRIBUTION

South-east mainland Australia and Tasmania



Flame Robin - male



Flame Robin - female

Scarlet Robin

Petroica boodang

Vulnerable species

MAJOR IDENTIFYING FEATURES

Small Robin 12 – 14 cm.

Male: Black upper parts with large white patch over beak, scarlet red chest.

Female: Pale brown above with large white patch over beak, pink or red wash on chest, buff-white angled shape on wing.

NOTES

They can often be seen perching in prominent positions on fence posts, stumps, open branches.

Most often seen in pairs in Spring & summer but can be part of multi-species foraging parties in autumn & winter.

Breeding season is from August to January.

Nests are rough bulky cup of bark, spider web, moss, lichen, in tree cavity, broken tree fork.

CONFUSING SPECIES

Flame Robin is more orange in colour and grey head rather than black, female has no tinge of orange/red on chest, smaller white patch above beak than Scarlet Robin, head colour persists lower down throat.

HABITAT

Forests, woodlands, open woodlands, plains, paddocks, golf courses, parks.

DISTRIBUTION

South-east mainland Australia, Tasmania south-eastern South Australia and south west Western Australia.



Scarlet Robin male




Scarlet Robin female

FORESTS NEW SOUTH WALES, CENTRAL REGION

STANDARD HARVEST PLAN CONDITIONS FOR NATIVE FOREST OPERATIONS UNDER THE IFOA

Approved: Kathy Jones

Signed: 
Regional Manager – Central Region

Date: 1 July 2011

1. Approvals and Responsibilities

The Contractor/Licensee is responsible to follow the direction of authorized Supervising Forest Officer and implement conditions specified in the relevant Harvesting Plan, Codes of Practice and IFOA Licenses. The contractor must receive a clearance certificate before moving between operations.

The Supervising Forest Officer (SFO) - is responsible to implement tree marking to meet silvicultural conditions and licence conditions and monitor contractor performance and log segregation to ensure compliance with harvest plan, code of logging practice and IFOA licence condition. The SFO must authorize use of existing snig track crossings, snigging across roads and trails and movement of dumps up to 200 m from the mapped location. The SFO is responsible for maintaining a diary of key events, a record of dump usage, temporary closures and undertaking regular Operational Inspection Reports (OIRs).

The Regional Manager must approve major amendments to harvesting plans, including activities requiring a schedule 6 assessment under the TSL prior to implementation.

2. Operational Conditions

Operational Conditions relating to the Threatened Species Licence, Environment Protection Licence and Fisheries Licence in Lower North East Region are specified in the Technical Guidance Notes 2005 booklets. A summary and interpretation of some of these conditions is provided below.

2.1 Drainage Feature Protection

Conditions of EPL Schedule 4: Section D Protection of Drainage Features Apply, except for conditions relating to Unmapped Drainage Lines in compartments where UMDL harvesting is permitted.

Riparian zone widths – Inherent Hazard 1 and 2 Compartments

Stream Order	EPL Filter Strip TSL Protection zone (hard)	EPL Protection Zone TSL Protection zone (soft)	EPL Operational Zone
Unmapped	0 (BMP#) Or 5	0 (BMP#) Or 5	0 (BMP#) Or 10
1 st Order	5	5	10
2 nd Order	5	15	10
3 rd Order	5	25	10
4 th Order or greater	5	45	10

BMP – Best Management Practice Guidelines for Logging Unmapped Drainage Lines – Section 4.

Riparian zone widths – Inherent Hazard 3 Compartments

Stream Order	Filter Strip (hard)	EPL Protection Zone TSL Protection zone (soft)	EPL Operational Zone
Unmapped	10	0	10
1 st Order	10	0	10
2 nd Order	20	0	10
3 rd Order	30	0	10
4 th Order or greater	50	0	10

NOTE: ONLY PROTECTION ZONE (SOFT) WILL BE MARKED IN FIELD

Drainage Depressions – 5m EPL Buffer Strip

Operational conditions to apply to Riparian Zones and Filter strips

Zone	Licence condition	Summary
EPL Buffer Strips (Drainage Depressions)	Conditions 15,16, 21-23 of Schedule 4 of the EPL must apply (Buffer strips).	Fall in and fall out. Minimise disturbance. Don't operate when soil is saturated.
Modified harvest zone (unmapped drainage lines)	Refer to SFO training package, Management of Unmapped Drainage Lines Conditions 1-3 of BMP apply	Fall in and fall out. Minimise disturbance. Groundcover rehabilitation requirements, 70% groundcover, furrow infill and drain. Harvesting machinery entry for 5m into zone.
Machine exclusion zone (unmapped drainage lines)	Refer to SFO training package, Management of Unmapped Drainage Lines Conditions 1-3 of BMP apply	Fall in and fall out. Minimise disturbance. Groundcover rehabilitation requirements, 70% groundcover, furrow infill and drain.
EPL Filter Strip (hard) And TSL Protection Zone (hard)	Conditions 6, 8, 11-14, 14A & 14B 17, 18, 19, 19A, 19B, 19C, 20 of Schedule 4 of the EPL must apply (Filter strips) Conditions 5.7a,d – i of the TSL must apply Operations within Protection Zones (hard)	Trees not to be felled into. Accidentally felled trees may be removed (not if pulp or salvage) provided that: -The crown is cut off from trunk and left where it has fallen unless tree can be lifted using mechanical harvester. -The wheels or tracks of harvesting machinery must remain outside protection zone (hard) -The SFO documents the incident -Resulting log furrow in filled with soil, drained onto a stable surface, at least 70% ground cover must be achieved within 5 days -Cannot reposition tracks within adjacent Protection Zone (soft)for the sole purpose of retrieving accidentally felled tree from filter strip/Protection Zone (hard), can only reposition tracks to retrieve accidentally felled tree if repositioning is associated with felling of trees within net harvest area away from Protection Zone (soft) 70% Groundcover must be achieved on all disturbed soil surfaces within EPL Filter strips within 5 days of creation. Harvesting Machinery must not enter filter strips or Protection Zones (hard) except for construction of and use of road crossing or snig track crossing

Zone	Licence condition	Summary
<p>EPL Protection Zone</p> <p>TSL Protection Zone (soft)</p>	<p>Conditions 20A – 20J of Schedule 4 of the EPL must apply (Protection Zones)</p> <p>5.7b, j – q TSL must apply Operations within Protection Zones (soft)</p>	<p>Trees in Protection zones (soft) must not be felled Trees may be felled into Protection zone (soft)</p> <p>The crown must be cut off from trunk and left where it has fallen unless tree can be lifted using mechanical harvester. Machinery may operate in the outer five meters of a protection zone for the purpose of cutting and removing timber logs located in an operational zone where: the technique of directional felling could not be used the only practical method of felling that tree so that it falls outside the protection zone (soft) is to enter the protection zone (soft) with harvesting machinery the tree is felled away from the protection zone (soft) the wheels or tracks remain 5 meter of the boundary of the protection zone and NHA walkover techniques only , minimise skewing Blade up at all times</p> <p>Cannot reposition tracks within a protection zone (soft) for the sole purpose of retrieving accidentally felled log from filter strip/protection Zone (hard) Can be moved only if needed to gain access to timber log in Operational zone Resulting log furrow in filled with soil, drained onto a stable surface, at least 70% ground cover must be achieved within 5 days 70% Groundcover must be achieved on all disturbed soil surfaces within EPL Protection Zone within 5 days of creation. No operations allowed when soil is saturated Machinery only to enter Protection Zone (apart from detail above) for the purpose of constructing extraction track or snig track crossing.</p>
<p>EPL Operational Zone</p>	<p>Conditions 20K – 20U of Schedule 4 of the EPL must apply (Operational Zones)</p>	<p>Fall in and fall out. Minimise disturbance by using walkover techniques and minimise skewing. log furrows in filled with soil, drained onto a stable surface, at least 70% ground cover must be achieved within 5 days 70% Groundcover must be achieved on all disturbed soil surfaces within EPL Protection Zone within 5 days of creation.</p>

Zone	Licence condition	Summary
		Don't operate when soil is saturated. Snig tracks may only be constructed (blade down) where the construction of a snig track immediately adjacent to the operational zone would result in a side cut. SFO to document these instances.
EPL Buffer Strips (Drainage Depressions)	Conditions 15,16, 21-23 of Schedule 4 of the EPL must apply (Buffer strips).	Fall in and fall out. Minimise disturbance. Don't operate when soil is saturated.

2.2 Roads and Road Crossings

The Conditions under Schedule 5 of the EPL apply to roads and road crossings.

2.3 Log Dumps

Location

Field location of log dumps must utilise the most level site available, consistent with the location indicated on the Operational Map. It is permissible for the SFO to move the location up to 200m from the indicated position to achieve this. If additional log dumps are required, the SFO must obtain approval from the Harvesting Forester.

Treatment – EPL Schedule 4 Conditions 26-32

Run-off from log dumps must not be discharged into drainage features.

Location of Dump and Log Dump debris	IH1	IH2	IH3
Dump Located from outer boundary of protection zone	Outside	10 m	20 m
Log Dump Debris must be located from outer boundary of protection zone	Outside	5m	15 m

Bark Management

The following 'bark management' practices will be implemented in lieu of section 16.2 of the Forest Practices Code:

On a log dump, bark should be moved by an excavator. Pushing bark around the dump with a blade should be avoided. Where bark has been pushed with a blade, an excavator must shake the soil out of the bark prior to it being heaped (this will facilitate burning of the bark heap).

Bark heaps must not be located adjacent to, or under the crowns of, retained trees.

Where a bark heap is located to the side of an active log dump, the bark heap must be surrounded by a 5m mineral earth break.

Upon completion of each log dump, bark heaps must be positioned in the centre of the log dump with the excavator, ensuring that the bark is essentially soil-free and 'fluffed up' ready for burning.

Timber off-cuts must be stacked separately, away from the bark heap.

Future Intent

Dumps must be re-shaped, drained to produce a stable surface. For dumps not planned to be re-used for harvesting within the next 10 years soil should be stockpiled prior to use and re-spread at the completion of use with the aim of establishment natural regeneration. The SFO must note instances where compaction of the dump means natural regeneration is unlikely to result and further treatment to achieve a regenerated condition is required.

2.4 Snig and Extraction Tracks

Conditions 38-82 of Schedule 4 of the EPL Apply.

Technique

Wherever practicable, walkover extraction techniques be used in preference to snig track construction.

The SFO must approve in writing the use of snigging/extraction equipment on roads and all roads must be returned to their pre-harvesting condition by the logging contractor immediately after a road has ceased being used for harvesting.

Drainage of Snig Tracks

EPL Table 3: Maximum Distance of Water flow along snig tracks or extraction track surface (metres measured along ground surface). The table may be interpolated to derive site-specific maximum spacings.

Track Grade (degrees)	Maximum Distance (metres)
5	100
10	60
15	40
20	25
25	20
30	15

Crossbank Height

The minimum unconsolidated crossbank height must be **35 cm**, and the minimum consolidated crossbank height must be **25 cm**. The EPA recommends a maximum unconsolidated height of **50cm**.

Drainage Feature Crossings

Use of existing snig track crossings is permitted with SFO approval (subject to conditions specified in Section 2.5 below).

All **new snig track crossings** must be authorised by the Regional Manager.

In Inherent Hazard 3 compartments snig tracks must not cross watercourses, unless by a using a permanent snig track crossing structure.

Snig tracks must be drained between 5 and 20 m of a drainage feature (where practicable).

Drainage feature crossing design, construction, management and monitoring must follow all of the many requirements of Conditions 39-62 of the EPL.

Wet Weather

All snigging and extraction must cease when water is running in tracks or tracks are likely to be significantly rutted.

Rutting

Maximum allowable soil disturbance for Snig/Extraction Tracks is 20cm deep for a length of 10m refer Forest Practices Circular 2008/04.

2.5 Summary of TSL Conditions

The Threatened species licence conditions for Lower North East Region are set out in the TSL Booklet – Technical Guidance Note 2005 – 3 A and these must be adhered to.

Exclusion Zone Category	TSL Exclusion Zone	Removal of accidentally felled trees if at least one HQ log? (see note 1)*	Machine entry to 5m for felling HQ logs in NHA away from exclusion zone? (note 2)	Felling of HQ logs into zone at 6/200 m? (see note 3)	Marking in the field	Use Existing Road/Snig Track (note 4)	Snig Track and Road Re-opening/ Construction (note 5)	IFOA licence condition	TSL condition	
Total/Solid	Heath and scrub				●	Sch6			5.10	
	General frog 10m around dams				●	Sch6			5.12	
Machinery-in	General bird nest and roost protection		✓		●	✓			5.13	
	Bat roost protection		✓			✓			5.14	
	Frogs: Green & Golden Bell Frog		✓			✓			6.2	
	Giant Barred, Fleays, Stuttering Frog, Philoria spp, Giant Burrowing Frog								6.3	
	Bats: Golden tipped Bat, Large-footed Myotis		✓				✓		6.4	
	Snakes: White crowned Snake, Pale Headed Snake		✓				✓		6.20	
	Rufous Scrub Bird		✓				✓		6.21	
	Threatened and protected flora		✓				✓		6.5	
Accidentals	Wetlands	✓				Sch6			6.6	
	Rainforest and rainforest exclusion zones	✓				✓		10A	5.9	
Limited	HCV Old Growth	✓	✓	✓		✓	RM	18	5.3	
	Rare Non-commercial Forest Type	✓	✓	✓		✓	RM	18	5.5	
	FMZ 2 and 3A	✓	✓	✓		✓	RM	18		
	Ridge and Headwater Habitat	✓	✓	✓		✓*				5.8
	Rocky outcrop and cliff protection	✓	✓	✓			Sch6			5.11

	Threatened species habitat protection	✓	✓	✓	✓	Sch6	6.9
	Large Forest Owl						6.13
	Hasting river Mouse						6.15
	Spotted tail Quoll						6.17
	Yellow Bellied Glider den						6.16
	Squirrel Glider						5.13
	Glossy Black Cockatoo nest/roost						
Riparian	TSL Riparian Habitat	✓	✓	✓	✓	RM	5.7

Note Fix bars/dots to match tree mark code

✓ = **Activity permitted (with conditions)**

1, 2, 3 – Refer to table notes for conditions

* TSL conditions are not breached where a tree is **accidentally** felled into any exclusion zone. However, accidentally felled trees may only be removed from the exclusion zones indicated in this table.

Table Notes:

(1) Removal of Accidentally Felled Trees

An accidentally felled tree may be removed, but only if the tree contains a high quality log. The following conditions apply:

- the crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and
- In removing the tree/log any disturbance to the ground and soil must be minimised.
- Harvesting machinery that has entered the exclusion zone for the purpose of felling a tree within the net harvest area (see 2 below) may also be used to remove a tree that has been felled into the exclusion zone accidentally, or as allowed in 3, below.
- The wheels or tracks of harvesting machinery must not (to any significant extent) be repositioned or moved solely for the purpose of removing a tree felled into the exclusion zone.

(2) Machine entry to 5m for felling HQ logs in NHA away from exclusion zone

Harvesting machinery is permitted to operate in an exclusion zone for the purposes of felling a tree within the net harvest area that contains a high quality log where:

- The technique of directional felling could not be used to fell the tree so that it falls outside the exclusion zone.
- The only practicable method of felling the tree is to enter the exclusion zone.
- The tree is felled away from the exclusion zone.
- The wheels or tracks of harvesting machinery remain wholly within 5 meters of the boundary of the exclusion zone.
- The use of the harvesting machinery involves the use of walkover techniques (only) and minimal ground disturbance.

(3) Felling of HQ logs into zone at 6/200

The felling of trees across the boundary of an exclusion zone is prohibited except where no more than six (6) trees containing high quality logs are felled across the boundary in any 200 meter length of the boundary of an exclusion zone, whatever 200 meter length of boundary is considered:

- An accidentally felled tree may be removed from the zone, but only if the tree contains a high quality log. These trees do not count toward the 6/200 rule.
- Trees fallen under the 6/200 rule must be felled in such a way so as to avoid damage to trees growing in the exclusion zone.

(4) Use of Existing Snig Track or Road

Schedule 6 requires NPWS approval prior to using a track through the specified exclusion zones. These approvals, where given, will usually be specified in the site-specific harvesting or roading plans prior to commencement of operations.

(5) Snig Track and Road Re-opening and Construction

RM = Regional Manager approval is required prior to constructing a road or snig track through these exclusion zones. These approvals will usually be specified in the site-specific harvesting or roading plans prior to commencement of operations.

3. Tree Marking Code

All exclusion zone and buffer zone boundaries must be marked in the field, except where specified forestry activities will not come within 50 metres of such boundaries. Retained trees must be marked, except where the understorey consists of thick impenetrable lantana greater than one metre high or other impenetrable understorey. In these cases the SFO must document and justify such situations as it becomes apparent during compartment mark-up in the SFO diary.

Description	Symbol
RETAINED TREES	
Retained trees may fill several roles (eg recruitment and feed tree) TSCL condition 5.6.g.(ii) (flatten/remove logging debris and minimise disturbance to ground and understorey within 5m radius) applies to trees retained with a letter code (except K).	
Retained trees not to be removed or damaged (eg grower)	One horizontal line or ring
Hollow-bearing tree	H
Recruitment tree	R
Eucalypt feed tree	E
Yellow-bellied Glider v-notch feed tree or record	YB
Yellow-bellied Glider retained feed tree	One horizontal line or ring
Squirrel Glider sap feed tree, record or nest	SG
Koala high use tree	K
Koala retained feed tree	One horizontal line or ring
Glossy black cockatoo feed tree, record or nest	GB
Owl nest and/or roost	OWL
Raptor nest	N
BOUNDARIES	
Solid Exclusion zones with no boundary exceptions. Licence conditions not breached if tree accidentally felled into	Four horizontal bars with dot above and below
Machinery Machinery entry 5m to fell timber log in NHA away from protn. Zone.	Three horizontal bars with dots above and below
Accidentals Can remove accidentally felled timber logs. Groundcover rules apply	Four horizontal bars
Limited Can remove accidentally felled timber logs. Groundcover rules apply Machinery entry 5m to fell timber log in NHA away from protn. Zone. 6 trees (containing timber log) in every 200m can be felled into.	Three horizontal bars
Riparian Protection zone to be marked in field	Two horizontal bars
Unmapped drainage line marking Modified harvesting zone, including 5m machinery exclusion zone, marked 10m from banks	∅
Edge of net harvest area (eg unmerchantable) Retained trees and critical boundaries to be marked within 30m beyond the boundary Tree heads may fall across the line, provided they comply with boundary and tree retention rules (eg 5m debris)	⊙

Description	Symbol
TREES TO BE REMOVED	
Individual tree	• or dots
Directional felling mark	← over •
Possible Pole	• with 'P'
Possible Girder	• with 'G'
SITES MARKED FOR INFORMATION	
Compartments boundary	O
Private property	PP
Dump site with optional dump number reference	D
Road/Track line	I
Approved crossing site with optional reference (crossing A)	↓ A
Cancellation mark	X
Edge of identified AGS 'groups'	*
Slope angle indication (commences here)	eg 25°
Dangerous Tree/Potential Dangerous Tree (with arrow if required)	∅
FLORA AND FAUNA FEATURES (Retain)	
Frog record	F
Hastings River Mouse record	HRM
Smoky Mouse record	SM
Quoll latrine	QL
Quoll den	QD
Quoll record	Q
Bat roost	BR
Bat record	B
Phascogale den	PD
Phyloria frog seeps and soaks	PHS
Cave, tunnel or mineshaft	CTM
Threatened plant	TP

4. Best Management Practices for Unmapped Drainage Lines

In compartments where Unmapped Drainage line harvesting is permitted the following best management practice conditions apply.

1.0 Machinery exclusion zone: 0 to 5m from drainage line.

1.1 Machinery is excluded within 5m of the edge of drainage lines, except for the construction and use of a crossing. The edge of the drainage line is defined consistent with the EPL. This zone is marked with the θ symbol.

2.0 Modified harvest zone: 0 to 10m from drainage line.

This zone is marked with the θ symbol.

Ground disturbance is to be minimised within this zone and disturbance must be rehabilitated as outlined below. Machinery is only to enter the outer 5m of this zone where essential and under the following conditions:

For mechanical harvesting operations: mechanical harvesting and shovel extraction with the harvester is permitted,

For manual falling harvesting operations: log extraction with a grapple skidder or dozer is permitted only where machinery does not have the capacity to use a snig chain/rope

For all operations: the construction or use of an authorised crossing.

2.1 Ground cover maintenance

2.1.1 Machinery operating within modified harvest zones must:

- a) Use walkover techniques wherever possible.
- b) Prevent to the greatest extent practicable the skewing of machinery tracks.
- c) Operate with blade up at all times except when conducting earthworks for the construction of a road, extraction track or snig track crossing, or for safety reasons. Crossings are to be minimised.
- d) Not snig along drainage depressions and drainage lines.
- e) Not operate when the soil is saturated.

2.1.2 Earthworks must not be undertaken within the modified harvest zone except for the construction of a road, extraction track or snig track crossing, consistent with EPL conditions to avoid soil disturbance.

2.1.3 Any crossings of unmapped drainage lines must be consistent with the conditions for crossing drainage lines in the EPL.

2.2 Ground cover rehabilitation

2.2.1 Soil disturbance created by machine operation in the modified harvest zone is to be rehabilitated by applying litter, twigs or mulch to achieve at least 70% surface cover on the disturbed area within one day of the creation of the disturbance (by contractor).

2.3 Log furrow rehabilitation

2.3.1 All log furrows produced by log extraction from the modified harvest zone must be:

- a) Infilled with soil and covered with litter, twigs or mulch to achieve at least 70% surface cover within one day of the creation of the furrow.
- b) Drained, 10m from the bank of the unmapped drainage line, so water running down any log furrow is dispersed onto undisturbed forest floor within one day of the creation of the furrow.
- c) Drained, if required, with a snig track crossbank, 10m from the bank of the unmapped drainage line, where a snig track will discharge water directly into the furrow (all by contractor).

3. Tree falling conditions

3.1 Tree selection and extraction

3.1.1 Trees may be felled into and from within the modified harvest zone.

3.1.2 Tree removal within the modified harvest zone and buffer on buffer trees from adjacent areas will be targeted single tree selection of high quality products only (quota, veneer, PPG, graded smalls).

3.1.3 Trees must be marked for removal within the modified harvest zone.

3.1.4 Minor debris from understorey trees accidentally falling into or across drainage lines is acceptable.

3.1.5 Directional felling should be used where possible to direct trees located within the modified harvest zone out of the zone, for ease of straight line extraction. Any such disturbance is to be rehabilitated with 70% groundcover.

3.1.6 Trees felled from within or into the modified harvest zone must be extracted in the direction of the line of the log to minimise soil disturbance.

3.1.7 If a tree is accidentally fallen into or across a drainage line:

- a) Forests NSW will take appropriate action, including the issuing of Penalty Infringement Notices, where trees are deliberately or negligently felled into or across a drainage line.
- b) Forests NSW will determine appropriate action on a case by case basis, that may involve the removal of substantial debris from within the banks of the drainage line where safe to do so. Consideration will be made of the potential fire risk, potential benefits of leaving the debris in place and other factors

3.2 Excluded trees

3.2.1 Trees may not be felled from within or into the modified harvest zone where:

- a) The ground slope in the zone of the anticipated disturbed area exceeds 21 degrees. The anticipated disturbed area is the area the SFO assesses as likely to be disturbed by tree falling and extraction (log furrow, snig track, area swept by log during extraction). The disturbed area does not include the area impacted by a tree head, ie trees may be felled into the zone where the ground slope exceeds 21 degrees only if there is to be no extraction disturbance. If trees are to be felled into the modified harvesting zone consideration should be given to the possibility of trees "spearing" into the drainage line.
- b) The tree is growing within the banks of the unmapped drainage line.
- c) The tree would fall into or across drainage lines to avoid disturbance to the drainage line or banks.
- d) There is evidence of localised occurrence of mass movement, such as earth slumps, topples, falls, slides and/or flows.
- e) There are regolith class 4 soils within the zone.
- f) There is less than 70% groundcover from pre-harvesting burning within the modified harvesting zone
- g) There are TSL species-specific or other exclusions, including where 200m/100m frog/bat species specific exclusions extend over unmapped drainage lines.
- h) Threatened Fish License habitat class 1 or 2 occurs and the unmapped drainage line is unbroken (by a drainage depression) from the mapped stream.
- i) Unmapped drainage lines can only be logged in accordance with seasonality restrictions.
- j) The tree serves the purpose of being a retained tree under TSCL requirements (such as habitat trees, recruitment trees and eucalypt feed trees).

