# HARVESTING GUIDELINES FOR NATIVE RAINFOREST AREAS IN QUEENSLAND


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These guidelines were compiled as part of the NHT Project 982035 **Sustainable Private Native Forest Management in the Wet Tropics**, 1998-2001. They were extracted from the Queensland Forestry Department 'Harvesting, Marketing and Resources Manual', specifically the chapter (section) on Rainforest Harvesting Guidelines. These guidelines were applied to all rainforest harvesting on Crown Lands which were managed by the Forestry Department before the closure to harvesting of these forests. Reference to the guidelines was included in the Sales Permits and this gave the guidelines enforcement capability.

# HARVESTING GUIDELINES FOR NATIVE RAINFOREST AREAS IN QUEENSLAND

## Introduction

The management objective for Queensland rainforest areas in State Forests and Timber Reserves that are suitable for harvesting is the sustainable production of forest products within a balanced conservation programme. This is achieved by applying a conservative selection silvicultural system, within the framework of careful planning, implementation and supervision of harvesting operations.

Selection silvicultural systems are based on the removal of utilisable trees of commercial species above a minimum diameter limit. Removals under this system are generally restricted to 8-12 trees/ha so as to ensure that a minimum of 50% of the upper forest canopy remains undisturbed by harvesting.

These guidelines are intended to provide practical guidance to personnel involved in harvesting operations.

## Definition of General Terms

**Designated Watercourse:** A permanent or intermittent watercourse which, for reasons of erosion risk, wildlife habitat or other inherent value, should remain undisturbed by harvesting activities is to be classified as a designated watercourse.

**Buffer Strip:** Is an area designated for watercourse protection by providing a physical barrier to the movement of soil from logged areas and ensuring stabilisation of the stream bank.

**Special Management Area:** Is an area determined to be of operational, scientific, scenic, historic or other significance warranting special consideration when planning harvesting operations.

## Definition of Soil Types

For the purposes of these guidelines, soils have been classified on the basis of their stability, using a combination of soil texture and colour properties, with secondary references to geology. See Table 1 for classification.

Table 1 Soil Erodibility Classification

| **EROSION HAZARD RATING +** | SOIL TYPE | | PARENT * MATERIAL |
|---|---|---|---|
| | Surface Texture and Subsoil Colour | Soil Groups | |
| **HIGH** | Shallow gravelly soils | lithosols | Coarse textured igneous rocks, (granites, granodiorite, diorite, gabbro). |
| | Sands or sandy loams with yellow, pale grey or black subsoils (or derived from granitic material). | alluvials podzols siliceous sands | |
| | Loams or clay loams with pale grey or black subsoils. | soloths, solodized solonetz, grey podzolics | Deeply weathered sandstones. |
| **MODERATE** | Sands or sandy loams with red subsoils (except on granitic material, then erosion hazard rating is high). | red earths red podzolics | Sedimentry rocks (shales, mudstones, conglomerates, lightly weathered sandstones). |
| | Loams or clay loams with red or yellow subsoils. | red or yellow podzolics | |
| | Clays with yellow, grey or black colours. | black earths, grey or brown clays, prairie soils | Moderately hard metamorphics. |
| **LOW** | Clay with yellow subsoils | xanthozem euchrozem | Fine textured igneous rocks (basalt, andesite, rhyolite, trachyte). |
| | Clay with red subsoils | krasnozem | Hard metamorphics. |

\+ A more detailed ranking of soil erodibility can be obtained by using the soil typing system described in either the Site Preparation Manual – Exotic Pine Plantations or in the 2R Hoop Pine design guidelines. This may be used where applicable in evaluating soil erosion hazard by staff familiar with its operation.

* Refers to the erosion hazard of exposed weathered material other than true soil. It is not implied that the above soils are derived directly from the rocks in the adjoining column.

## Planning of Harvesting Operations

Minimising environmental and visual impact of harvesting operations whilst containing the costs of timber removal are aided by thorough pre-operational planning.

A formal harvesting plan shall be prepared for each sale in advance of operations by the supervising Forest Officer, in consultation with the purchaser's representative. The harvesting plan shall be prepared in accordance with guidelines set down in the Harvesting Planning Section of the Harvesting, Marketing and Resources Management Manual. Prior to the finalisation of this plan the Sale area should be jointly inspected by both parties to gain an appreciation of forest conditions, terrain, soil type and any special features.

The harvesting plan shall be signed by both the Forest Officer and the Purchaser's representative as an indication of comprehension and agreement.

The harvesting plan may be changed at any time with the written agreement of both parties.

A copy of the harvesting plan and those sale agreement clauses pertaining directly to harvesting operations should be made available to the harvesting contractor by the Purchaser's representative.

## Areas in which Harvesting is Restricted

a. Buffer Strips

Buffer strips need to be zones of total exclusion from harvesting operations, and must protect both permanent and temporary watercourse channels, since the latter are often a major source of sediment input during storms.

Buffer strips are to be retained on each side of a designated watercourse generally commencing at the top of the banks confining the normal flow of the watercourse. As a guide, Buffer Strips should be retained below the point on the watercourse where the catchment exceeds the areas specified below:

| **Erosion Hazard Rating** | **Catchment Area (ha)** |
|---|---|
| High/Moderate | 60 |
| Low | 100 |

The following is provided as a guide to buffer strip width.

| Watercourse Type | Average Grade of Catchment | |
|---|---|---|
| | Undulating to Moderate ($<15^o$) | Steep to Very Steep ($\geq 15^o$) |
| Intermittent | 10 m | 20 m |
| Permanent | 20 m | 30 m |

Wider reserves may be specified by the District Forester in particular instances.

The entry of harvesting machinery into any part of the buffer strip is not permitted except for watercourse crossings specified by the Forest Officer.

Tree heads must not be felled into watercourse banks because debris generally increase the water turbulence and therefore increases both erosion and soil loads. Tree heads which inadvertently fall into the watercourse should be removed where possible, with as little soil disturbance as possible.

b. Operational Limits

Access for conventional ground based harvesting systems is limited on the basis of environmental considerations. Slope, soil conditions and soil moisture all interact to predispose soils to damage by harvesting machinery.

Access for machinery currently employed in harvesting operations is restricted to slopes not exceeding $30^o$. Machine operations on moderate (high) erosion hazard soil types with slopes exceeding $25^o$ ($20^o$) should be undertaken with a minimum of disturbance to the mineral soil.

c. Special Management Areas

Harvesting should only be considered where disturbance will not impact adversely on the primary function of the area. Conditions applying specifically to harvesting operations in Special Management Areas should be included in the harvesting plan.

Areas excluded from harvesting must be clearly identified in the harvesting plan.

d. Protection Strips

A 10 metre Protection Strip should be retained along the Sale Area boundary adjoining National Parks and adjacent to all Special Management Areas where harvesting is excluded. Harvesting in these strips is confined to declining stems whose heads will fall outside the area and can be extracted without earthworks or significant soil disturbance.

## Special Considerations

a. Flora and Fauna Conservation

Nature conservation must be seen in a regional context. Effective conservation requires the co-operation of a range of Government and private organisations. District Foresters and their staff should be aware of the views of all organisations having a conservation interest in lands under their control. M.P.A. zoning principles are used on State Forests to identify areas of specific conservation value.

Zones identified as having priority use for timber production will be managed so as to integrate flora and fauna conservation with harvesting operations. Where conservation of flora and fauna communities is identified as a significant secondary use this may necessitate some modification in management practices.

The need for provision of habitat trees or retention of areas of special conservation value should be identified by the District Forester prior to harvesting and any special management prescriptions for these areas included in the harvesting plan.

b. The Residual Stand

The forest structure retained after harvesting should be consistent with the objectives of sustainable management.

The forest remaining after harvesting operations serves a number of critical functions, including:

- the provision of growing stock for the next cutting cycle;
- a source of forest nutrition; and
- a source of habitat.

The planning and implementation of harvesting operations should be such that the residual stand is afforded a high level of protection.

## Access to the Sale Area

i. Location

The location of harvesting roads on State Forests and Timber Reserves shall be determined by the Service after consultation with the purchaser and marked on the harvesting plan and in the field.

- Roads shall be located for minimum earth works and for ease of drainage e.g. close to or along ridge tops or on moderate side slopes. The roading network should be designed to minimise the number of stream crossings. Road locations adjacent to National Park, Feature Protection Area or Scientific Area boundaries should be avoided.

- Clearing width, where practical, should be no wider than 7.5 m for major extraction roads and no wider than 5.0 m for minor extraction roads. The Forest Officer may permit additional clearings on sharp bends to facilitate truck access.

- Major box cuts or side cuts (deeper than 2.0 m) should be shown on the harvesting plan.

ii. Sidecutting

- Sidecutting should be kept to a minimum, especially on areas of high erosion hazard. As a guide, sidecut roads should generally not be located on slopes greater than $30^{o}$ (58%) on low and moderate erosion hazard sites, and $25^{o}$ (46%) on high erosion hazard sites. However, where they are considered unavoidable they should be shown on the harvesting plan. Where potential for mass soil movement exists, the Forest Officer may require sidecuts to be battered and spill stabilised with a cover crop. As a guide, sidecuts exceeding 2 m on high erosion hazard soil types and 3 m on low and moderate erosion hazard soil types should be battered and stabilised and this requitement included in the harvesting plan.

iii. Grades

- Road grades should generally be $8^{o}$ (14%) or easier, though sections steeper than $8^{o}$ (14%) are acceptable for short distances to reduce construction costs provided that adequate drainage can be installed.

iv. Soil Disturbance

- The use of a machine blade to remove soil from roads except during initial construction and drainage shall not be permitted without the approval of the Forest Officer. This does not include minor repair work or work that will not further excavate the road.

- Borrow pits should be avoided wherever possible by matching cuts and fills. Where borrow pits are unavoidable, they should be made as small as practicable and must be rehabilitated after use. Where possible, all borrow pits should be excavated as parts of widened road works or flattened road batters. All borrow pits must be adequately drained and all pit walls should be battered to prevent slumping.

**Felling**

Tree felling shall be carried out in a safe and proficient manner with correct sawcuts and scarfing.

Tree fellers should be capable of directional felling to assist the extraction process, to avoid hang-ups, to improve product recovery and to avoid damage to special management areas or the residual stand. All hung-up trees shall be pulled down immediately if a suitable machine is available or appropriately flagged to warn forest users of the hazard, until the tree can be made safe. All trees scarfed are to be felled.

Stump height should be kept to a minimum and where practicable below 60 cm.

**Tracking**

The feller shall plan and define by tracking the minor snig track system such that it links up to the main snig track system.

The purpose of feller defined tracks is:

i. to minimise the number of tracks for the greatest number of log snigs thereby saving on machine time, cost and stand damage.

ii. to eliminate unnecessary stand damage by the snigging machine.

iii. provide winch line paths to logs thus eliminating the necessity for the machine to approach every log and thereby reducing stand damage.

It is the responsibility of the snigging machine operator to use the tracks as defined by the feller to "break-out" logs onto the major snig track.

**Log Extraction**

Wherever possible, snigging shall be directed away from watercourses to ramps located on ridges. Uphill snigging is preferred to downhill snigging since it tends to disperse snig track run-off. Snig tracks should not follow the beds of drainage lines.

Whilst it is recognised that downhill snigging may be necessary in some cases, snig track location should be carefully considered to best serve the resource with the minimum of earthworks and with provision made for adequate drainage at the time of construction.

On slopes exceeding $15^{o}$, major snig tracks (those that carry greater than 10 snig loads) shall be marked on the harvesting plan and where practicable in the field by the supervising Forest Officer. Field location of snig tracks should be completed prior to the commencement of felling operations so that the trees can be felled in a direction and sequence such that the snigging effort is minimised.

On major snig tracks that do not require sidecutting, gradient shall generally not exceed $15^{o}$ on high erosion hazard soil types, $20^{o}$ on moderate erosion hazard soil types and $25^{o}$ on low erosion hazard soil types.

Sidecutting of snig tracks should not be attempted on sideslopes exceeding $30^{o}$ on all soil types due to physical soil movement associated with this work. Gradient of sidecut snig tracks should generally not exceed $10^{o}$ on high erosion hazard soil types, $15^{o}$ on moderate erosion hazard soil types and $20^{o}$ on low erosion hazard soil types, except for short distances where it will reduce earthworks. The maximum width for snig tracks shall be 4 metres.

The use of a machine blade to remove soil from the snig tracks (blading off) is not permitted without the approval of a Forest Officer. Exceptions exist only during initial construction, drainage of tracks and where minor repair work is necessary and will not further excavate the track. Snig machine operators should avoid unnecessary use of the machine blade during

routine snigging operations, thereby reducing machine disturbance to upper soil layers, and reducing the extent of follow-up drainage.

All extraction machines must have available a minimum of 30 m of winch rope and blade width must not exceed 4 m. Machines with a power rating exceeding 100 kw will not be permitted in snigging operations.

**Log Ramps**

Log ramps shall be located wherever possible on ridges and where practicable on slopes not exceeding $6^{o}$ (10%).

Log ramps shall not be located;

i. within 10 metres of a Buffer Strip, Protection Strip, Special Management Area or drainage line.

ii. within 40 metres of a main road which is subject to significant public use;

iii. within 20 metres of an energised overhead powerline.

Log ramp size should be kept to a minimum commensurate with efficient operations. Ramps should be located, so that as far as practicable, snig tracks converging downhill are avoided.

The following provides a guide to log ramp size and frequency:

| Terrain | Size | Frequency |
|---|---|---|
| Moderate to Undulating ($<15^{o}$) | 500 $m^2$ | 1 ramp per 5 ha |
| Steep to Very Steep ($\geq 15^{o}$) | 750 $m^2$ | 1 ramp per 10 ha |

Upon completion of harvesting, debris accumulated on the log dump must be disposed of as directed by the supervising Forest Officer.

**Haulage and Harvesting Roads**

All vehicles using forest roads must comply with configuration and maximum wheel loads as specified in the Main Roads Department's publication *Road Vehicle Limits* unless authorised in writing by the Forest Officer. In addition they shall comply with any specific restraint in regard to speed of travel, weight or length that may be prescribed by the supervising Forest Officer.

All loads shall be securely restrained before the hhaulage vehicle leaves the harvesting site. A minimum of two binding chains should be used when securing loads, with each log secured by at least one chain.

Supervising Forest Officer may approve the use of log extraction equipment to assist haulage vehicles over difficult sections of roads.

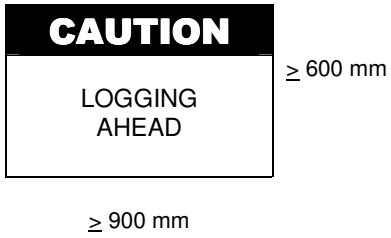
No roads or tracks are to be built or used other than those constructed by the Department or allowed for in the plan except with the permission of the supervising Forest Officer.

In this regard, the location of harvesting roads shall be discussed with the Purchaser's representative and the harvesting contractors prior to construction. Roads shall be kept open to essential traffic during the course of operations. A Forest Officer may close a road to enable maintenance or construction work to be carried out following notification in writing to the Purchaser. The Department will undertake normal road maintenance, however the repair of damage to road surfaces (reasonable wear and tear excepted) structures, signs etc., shall be the responsibility of the Purchaser.

**Public Safety**

a. Signposting of Harvesting Operations

All harvesting operations likely to be hazardous to persons engaged in forest operations, or any member of the public using roads (and tracks) in the area, are to be clearly and legibly signposted on the road, warning of the hazard. In these instances it is the absolute responsibility of the Purchaser to ensure that contractors erect portable signs stating "Caution Logging Ahead". These signs are to conform with Australian Standards 1319-1983 or an equivalent recognised standard, and are to remain in place whilst harvesting operations are in progress.

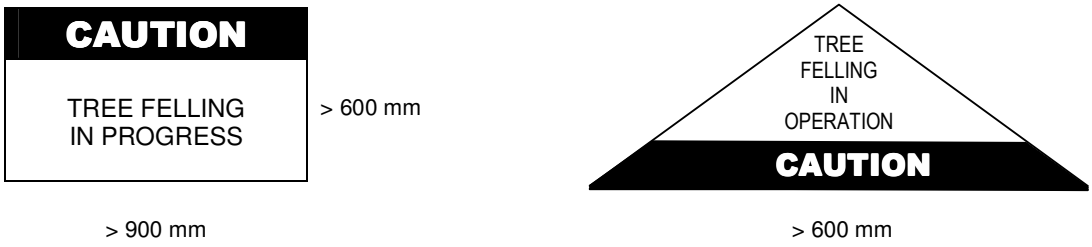



Specification

Print Size: Caution - ≥ 100 mm
Logging Ahead - ≥ 75 mm

Colour: Caution – Yellow lettering on black background
Logging Ahead – Black lettering on yellow background.

Should the Purchaser consider this form of sign inadequate, particularly with regard to tree felling operations, he shall ensure additional signs are erected advising "Caution Tree Felling in Progress/Operation". This sign should only remain in place whilst operations are in progress. At the end of each working week or prior to operations ceasing for a period likely to exceed 48 hours, signs should be removed or covered. These signs should be reinstated prior to the commencement of harvesting operations. These signs should be of a standard not less than that specified in Australian Standard 3574-1988 Section 7.5.2.

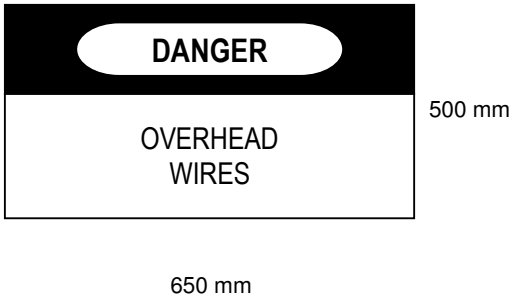



Specification

Print Size: Caution - ≥ 100 mm
Tree Felling in Progress - ≥ 75 mm

Colour: Caution – Yellow lettering on black background
Tree Felling in Progress/Operation – Black lettering on yellow background

Where overhead powerlines are likely to be hazardous to persons engaged in tree felling, log extraction and log loading operations, their presence is to be clearly and legibly signposted within the sale area. In these instances, portable signs stating "Danger Overhead Wires" will be made available by the Forest Service and are to be erected in accordance with the requirements of the harvesting plan. The shifting of signposting within the sale area to provide ongoing warning of the hazard is however, the responsibility of the purchaser. These signs are to remain in place whilst harvesting operations are in progress.




Specification

Print Size: Danger - ≥ 65 mm
Overhead Wires - ≥ 50 mm

Colour: Danger – White lettering on red background.
Overhead Wires – Black lettering on white background.

Attention of harvesting operators is also drawn, to the need for safe work practices near overhead powerlines. It is recommended that all persons involved in harvesting operations near overhead powerlines, familiarise themselves with the content of the "Electrical Safety Handbook". Copies of this handbook are available for purchase from the Electricity Supply Association of Australia or on loan from State Forest Group offices.

b. Temporary Road Closure

When trees are to be felled in a manner that the Purchaser considers constitutes a hazard to the road user, he shall take steps to temporarily close the road with the use of temporary barriers and temporary signs until felling and snigging are complete. Where, in the opinion of the Purchaser additional traffic control measures are necessary, he shall engage the services of a flagman to control traffic whilst actual felling is in progress.

Although safety in harvesting operations near roads is primarily the responsibility of the Purchaser, temporary road closures must only be carried out in co-operation with Forestry staff, so as to ensure minimal disruption to traffic.

These temporary barriers and temporary signs are not to remain on the road between sunset and sunrise, unless the Purchaser considers it necessary to ensure the safety of the road user. In such a case, barriers and signs must remain in place and be illuminated where considered necessary. Signs should comply with Australian Standards 1319-1983 or an equivalent recognised standard.

**Drainage**

The provision of drainage structures is essential for the maintenance of all harvesting roads and reduces the risk of snig tracks and log ramps becoming sources of soil erosion. However drainage of snig tracks not significantly disturbed is considered unnecessary. Significant disturbance is to be interpreted as the exposure of mineral soil for a continuous distance exceeding 20 m. Where possible, order of working should be such that a minimum area of the sale unit is left undrained at any one time. Operations should be aggregated for this purpose. If a number of log ramps or snig tracks are operated for the purchaser's convenience, they must be drained at the end of every working week.

Drains may be constructed as either side drains, inverts or cross drains. Where non-sidecut snig tracks are constructed on side slopes and cross drainage will occur, provision of drains may be unnecessary provided water can freely exit the snig track. Sidecut tracks must be drained and should be slightly out-sloping where safely practicable.

Where water is to be directed from one side of a minor forest road to another, invert drains are preferred to culverts.

Cross drains where possible should be self-clearing and empty onto the undisturbed forest floor. Where possible they should be constructed at an angle not less than $30^{o}$ to a line normal to the track centre line. However where steep grades occur in conjunction with steep slopes, consideration should be given to constructing cross drains at a more acute angle to prevent scouring.

The location of drains should be marked on snig tracks by the supervising Forest Officer prior to construction, as a guide for inexperienced machine operators.

Box cuttings in road construction are to be avoided particularly at creek crossing approaches as they present drainage problems. Where they cannot be avoided diversion drains must be established about 100 m from the crossing to facilitate cross drainage on completion of operations.

A guide to construction is provided in Appendix 1.

i. Timing of Drainage Construction

In order to limit water flow along roads and ponding of water, roads should be adequately drained at the time of construction.

Snig tracks must be drained on completion of snigging on each snig track, ramps on completion of processing and loading operations. All snig tracks and log ramps must be drained at the completion of the harvesting season.

ii. Drainage Espacement

The following table provides guidelines for the maximum spacing of road and track drainage based on the soil erosion hazard.

| Grade of Snig Track or Road | Maximum Spacing of Cross Drains (m) | |
|---|---|---|
| | Low Hazard | Moderate and High Hazard |
| $<5^o$ | 60 | 30 |
| $5 – 15^o$ | 40 | 20 |
| $15 – 25^o$ | 20 | 10 |
| $\geq 25^o$ | 10 | NA |

Cover crop establishment in the base and banks of all drains is recommended on slopes exceeding $25^o$.

As a guide cross drains should be greater than 0.5 m in height and should be reinforced to at least 1.0 m at the point where it takes off from the sidecut drain.

**Watercourse Crossings**

Stream crossings are potentially the largest source of stream sediment. Logs shall not be snigged or hauled through standing or running water unless specified by the supervising Forest Officer. Pre-harvesting planning must ensure that the number of crossings of major watercourses is minimised and that all necessary crossings are properly located. All crossing locations and types should be shown in the harvesting plan.

i. Permanent Crossings

Culverts may be used where peak flows are not extreme and the depth of fill is not great, otherwise a bridge may be necessary. Culvert diameter should be 450 mm or larger. Culverts should not discharge onto fill material.

Floodways may be used in intermittent streams where flood flows are high but of short duration and vehicle frequency is low. These should be constructed out of concrete or well compacted non-erodible material. They should be adequately protected up and down stream to prevent scouring. Approaches to the crossings should be covered with non-erodible materials such as rock or gravel where practicably available.

Where such material is not available. drainage measures should be of a standard that prevents water running from approaches directly into the stream, directing it instead into undisturbed forest before entering the stream.

Where possible, crossings of streams should be located at right angles to the stream, where stream channels are straight, and have well defined stream banks.

Major crossing embankments should be protected by suitable abutments e.g. concrete, timber, logs or rocks.

ii. Temporary Crossings

Temporary crossings should be located on sites with stable stream-bed material and where bank restoration will be possible. If necessary the crossing should be corduroyed with logs or constructed of stable gravel material.

Temporary crossing construction activities should be timed to coincide with dry weather and low stream flows.

As soon as operations over the crossing are completed the temporary crossing should be removed and the stream bed and banks restored as near as possible to their original condition, provided it is judged by the Forest Officer at the time of compiling the harvesting plan that this operation is practical and would not lead to increased bank disturbance and stream siltation.

Approaches to the temporary crossing should be on non-erodible soil types where possible and adequately drained to prevent run-off flowing directly into the stream.

**Suspension or Restriction of Operations**

i. There should be no felling of trees or snigging or hauling of logs between 1 January and 31 March, in any year, except when drainage works are completed by 31 December in the previous year and weather conditions are suitable. In this case, the District Forester could extend, in writing, the period of operations. Such extensions should be conditioned to limit the volume cut at any one time, and require immediate snigging and hauling. Harvesting would also be restricted to areas where drainage and environmental problems are minimal.

ii. At all other times snigging operations shall automatically cease when soil becomes saturated and/or free surface water commences to run for greater than 20 m on snig tracks, in water tables or on log dumps. It is the responsibility of the Purchaser to ensure his contractors cease work under these conditions and that they do not recommence until free surface water run-off ceases. The District Forester may waive this condition if he is satisfied that the machine in question will not cause excessive damage to the environment.

iii. The District Forester reserves the right to extend the duration of automatic closures outline in (ii), to allow for drying and drainage after surface water run-off has ceased.

iv. Loading of trucks and haulage over bitumen sealed 'A' and 'B' class roads may continue during automatic closures. Haulage over other road surfaces is permitted only on the authority of the supervising Forest Officer.

v. The District Forester reserves the right to enforce a total closure when weather conditions are extremely adverse. During this time all extraction and haulage operations will cease.

vi. The Purchaser shall be notified of any extension of automatic closures and total closures immediately in writing.

**Harvesting Equipment**

All harvesting equipment must be deemed acceptable by the Queensland Forest Service. Harvesting equipment not previously used on State Forest must be approved by the District Forester prior to the commencement of operations.

The attention of purchasers/contractors is drawn to their obligations under the Workplace, Health and Safety Act (1989). This legislation specifies the employers duty of care obligations for all employees. This includes the operation of safe well maintained harvesting equipment, the provision of appropriate training and the application of safe working practices. Australian Standard 3574-1988 provides a good guide to appropriate practices for the forest environment.

Due to the increased horsepower requirement and increased soil disturbance caused by the ploughing effect of the front of logs during snigging, harvesting equipment should be capable of raising the front end of the load during snigging. It is recognised however that, due to average log size or steepness of terrain, it may not always be possible or safe to raise the front end of the log clear of the ground.

**General Hygiene Standards**

a. General

Pollutants that may enter streams as a result of the presence of machinery should be handled with care, with:

i. All reasonable steps should be taken to prevent spillage during refuelling.

ii. All reasonable steps should be taken to avoid oil spillage due to leaks or during oil changes.

iii. All refuse introduced to the forest as a result of harvesting operations eg packaging materials, bottles, tins, used oil filters, empty grease gun cartridges, drums etc., removed from the forest

b. Parthenium Weed

Movement of materials, vehicles or machinery has the potential to spread declared plants. Parthenium is a declared plant under the Rural Lands Protection Act and any occurrence associated with harvesting operations is to be identified and the following procedure applied:

i. Determine the extend of the infestation and mark on District maps. Notify the local Rural Lands Protection Board Inspector of the occurrence.

ii. Where harvesting operations will involve the movement of vehicles from the area of parthenium infestation to clean areas the matter should be discussed with the inspector. The inspector can then define what action he requires the Forest Service and the purchaser/harvesting contractor to take.

iii. Requirements in regard to road access, snig track/ramp location, timing of harvesting and vehicle washdown should be included in the harvesting plan. In relation to vehicle washdown, the object is to prevent movement of seed or plant parts from infested to clean areas. Forestry vehicles must not move from infested areas to clean areas without ensuring spread will not occur. Where washdown is required this should be done within the infested area whenever possible. Where water is not available the matter should be discussed with the local inspector with a view to carrying out the washdown outside of the infested area, at a place where any subsequent weed germination can be readily monitored and controlled.

iv. Action taken by harvesting contractors is primarily a matter for direction by the inspector. However, Forest Officers should assist to ensure the objectives of the Act are achieved. Purchaser's and contractor's should be aware that movement of seeds or plant parts is possible during harvesting operations be it from stump to mill or secondary movement of logs from mill to mill.

**Review of Guidelines**

These guidelines are aimed at providing practical, rational guidance to Forest Officers and Purchasers involved in harvesting operations with a view to minimising the adverse site impact of those operations. They are also aimed at providing a basis for sale conditions with respect to harvesting operations.

Differences between carefully planned and managed harvesting operations and those which are not, are readily apparent. Harvesting operations will be constantly monitored and the guidelines will be kept under review and amended as necessary to ensure the objectives are met.

Group A species are in order of desirability, for retention. Group B, C and D are alphabetical listings only. There is no preference for retention between Groups B, C and D species.

| Limit dbhob (cms) | Trade Name Australian Standard 2543-1983 | Botanical Name | Comment |
|---|---|---|---|
| **GROUP A** | | | |
| 80 | Queensland Maple | *Flindersia brayleyana* | |
| 80 | Red Cedar | *Toona australis* | |
| 80 | Maple Silkwood | *Flindersia pimenteliana* | |
| 80 | Queensland Kauri Pine | *Agathis robusta* | syn. *A. palmerstonii* |
| | | *Agathis atropurpurea* | |
| 80 | Northern Silky Oak | *Cardwellia sublimis* | |
| 70 | Silver Silkwood | *Flindersia acuminata* | syn. *F. pubescens* |
| 70 | Silver Ash | *Flindersia schottiana*<br>*Flindersia bourjotiana* | No tree showing undulating or roping patterns on the bole surface is to be marked for removal. |
| 100 | Queensland Walnut | *Endiandra palmerstonii* | |
| 70 | Hickory Ash | *Flindersia iffliana* | |
| | | | |
| **GROUP B** | | | |
| 70 | Black Pine | *Prumnopitys amara* | syn. *Podocarpus amara* |
| 70 | Briar Silky Oak | *Musgravea heterophylla* | |
| 70 | Johnstone River Hardwood | *Backhousia bancroftii* | |
| 70 | Red Silkwood | *Palaguium galactoxylum* | |
| 70 | Red Siris | *Albizia toona* | |
| 70 | Red Tulip Oak | *Argyrondendron peralatum* | |
| 70 | Satin Oak | *Oreocallis wickhamii* | |
| 70 | White Beech | *Gmelina fasciculiflora* | |
| 70 | White Cheesewood | *Alstonia scholaris* | |
| | | | |
| **GROUP C** | | | |
| 60 | Barringtonia | *Barringtonia calyptrata* | |
| 60 | Black Bean | *Castanospermum australe* | |
| 60 | Blush Silky Oak | *Opisthiolepis heterophylla* | |
| 60 | Bolly Silkwood | *Cryptocarya oblata* | |
| 60 | Boonjie Blush Walnut | *Beilschmiedia sp.* excluding *B. obtusifolia* (blush walnut) | |
| 60 | Brown Quandong | *Elaeocarpus coorangooloo* | |
| | | *Elaeocarpus ruminatus* | |
| 60 | Brown Walnut | *Endiandra acuminata* | syn. *E. subtriplinervis* |
| 60 | Brush Mahogany | *Geissois biagiana* | |
| 60 | Crater Silky Oak | *Musgravea stenostachya* | Compulsory at minimum stumpage |

| | | | |
|---|---|---|---|
| **Limit dbhob (cms)** | **Trade Name Australian Standard 2543-1983** | **Botanical Name** | **Comment** |
| **GROUP C** | *Continued…* | | |
| 60 | Cream Mahogany | *Chisocheton longistipitatus* | |
| 60 | Damson | *Terminalia sericocarpa* | |
| 60 | Evodia | *Euodia elleryana* | |
| 60 | Fishtail Silky Oak | *Neorites kevediana* | |
| 60 | Grey Carabeen | *Sloanea macbrydei* | |
| 60 | Grey Satinash | *Eugenia gustavioides* | |
| 60 | Kuranda Satinash | *Eugenia kuranda* | |
| 60 | Magnolia | *Galbulimima belgraveana* | |
| 60 | Miva Mahogany | *Dysoxylum muelleri* | |
| 60 | Northern Evodia | *Euodia vitiflora* | |
| 60 | Pepperwood | *Cinnamomum laubatii* | |
| 60 | Pink Myrtle | *Metrosideros queenslandica* | |
| 60 | Red Eungella Satinash | *Eugenia sp.* | N.B. Do not mark stems above 100 cm DBH/ABOB. Restrict marking to trees actively growing i.e. wide sapwood band. |
| 60 | Red Penda | *Xanthostemon whitei* | No tree in excess of 180 cm DBH/ABOB is to be marked for removal unless requested by the purchaser |
| 60 | Rose Alder | *Caldcluvia australiensis* | syn. *Ackama australiensis* |
| 60 | Rose Butternut | *Blepharocarya involucrigera* | |
| 60 | Rose Mahogany | *Dysoxylum fraseranum* | |
| 60 | Rose Silky Oak | *Placospermum coriaceum* | |
| | | *Darlingia ferruginea* | |
| 60 | Sassafras | *Doryphora aromatica* | |
| | | *Daphnandra dielsii* | |
| 60 | Satin Sycamore | *Ceratopetalum succirubrum* | |
| 60 | Scented Maple | *Flindersia laevicarpa* | |
| 60 | Silver Quandong | *Elaeocarpus grandis* | |
| 60 | Spur Mahogany | *Dysoxylum pettigrewianum* | |
| 60 | Stony Backhousia | *Backhousia hughesii* | |
| 60 | White Carabeen | *Sloanea langii* | |
| 60 | White Eungella Satinash | *Eugenia spp. aff. smithii* | |
| 60 | Yellow Bean | *Ormosia ormondii* | syn. *Podopetalum ormondii* |
| 60 | Yellow Satinash | *Eugenia sp.* | |
| 60 | Yellow Siris | *Albizia xanthoxylon* | |

| Limit dbhob (cms) | Trade Name Australian Standard 2543-1983 | Botanical Name | Comment |
|---|---|---|---|
| **GROUP C** | *Continued…* | | |
| 60 | Yellow Walnut | *Beilschmiedia bancroftii* | No tree showing undulating or roping pattern on the bole surface of this species is to be marked for removal. |
| **GROUP D-1** | | | |
| 60 | Blush Alder | *Sloanea australis* | No tree showing undulating or roping pattern on the bole surface of this species is to be marked for removal. |
| 60 | Brown Tulip Oak | *Argyrodendron trifoliolatum* | |
| 60 | Buff Silky Oak | *Sphalmium racemosum* | syn. *Orites racemosa* |
| 60 | Canary Beech | *Polyalthia michaelii* | |
| 60 | Cassowary Satinash | *Acmena graveolens* | |
| 60 | Cheesewood | *Nauclea orientalis* | |
| 60 | Cherry Satinash | *Eugenia luehmannii* | |
| 60 | Endospermum | *Endospermum peltatum* | |
| 60 | Hard Leichhardt | *Neonauclea sp. Instia bijuga* | |
| 60 | Kwila | *Instia bijuga* | |
| 60 | Lillipilli Satinash | *Acmena smithii* | syn. *Eungenia smithii* |
| 60 | Mararie lachnocarpa | *Pseudoweinmannia* | |
| 60 | Paperbark Satinash | *Eugenia sp.* | |
| 60 | Pink Mahogany | *Dysoxylum oppositifolium* | |
| 60 | Plum Satinash | *Eugenia crytophlebia* | |
| 60 | Rose Maple | *Cryptocarya rigida* | |
| 60 | Rough-barked Satinash | *Eugenia trachyphloia* | |
| 60 | Salmon Bean | *Archidendron vaillantii* | |
| 60 | Tulip Plum | *Pleiogynium timorense* | |
| 60 | White Birch | *Schizomeria whitei* | |
| 60 | White Siris | *Ailanthus triphysa* | |
| 60 | Yellow Boxwood | *Planchonella obovoidea* | |
| | | *Planchonella pohlmaniana* | |
| 60 | Yellow Penda | *Tristania pachysperma* | |
| | | | |
| **GROUP D-2** | | | |
| 50 | Almondbark | *Prunus turnerana* | |
| 50 | Blackwood | *Acacia melanoxylon* | |
| 50 | Bollywood | *Litsea bindoniana* | |
| | | *Litsea glutinosa* | |
| | | *Litsea leefeana* | |

| Limit dbhob (cms) | Trade Name Australian Standard 2543-1983 | Botanical Name | Comment |
|---|---|---|---|
| **GROUP D-2** | *Continued…* | | |
| | | *Litsea reticulata* | |
| | | *Litsea sp.* | |
| 50 | Brown Pine | *Podocarpus elatus* | |
| 50 | Brown Salwood | *Acacia aulacocarpa* | N.B. in pure stands, |
| | | *Acacia mangium* | treemark to 60 cm DBHOB to avoid excessive damage to retained trees. |
| 50 | Brown Silky Oak | *Darlingia darlingiana* | |
| 50 | Brush Cypress Pine | *Callitris macleayana* | |
| 50 | Creek Satinash | *Eugenia australis* | |
| 50 | Hard Milkwood | *Alstonia muellerana* | |
| 50 | Hard Quandong | *Elaeocarpus sericopetalus* | |
| 50 | Lightwood | *Acacia implexa* | |
| 50 | Northern Quandong | *Elaeocarpus foveolatus* | |
| 50 | Nutmeg | *Myristica insipida* | syn. *M. muelleri* |
| 50 | Pink Ash | *Alphitonia petriei* | |
| 50 | Pink Satinash | *Syzygium dictyophlebium* | |
| 50 | Tropical Quandong | *Elaeocarpus largiflorens* | |
| 50 | White Cedar | *Melia azedarach* var. *australasica* | |
| 50 | White Hazelwood | *Symplocos cochinchinensis var. stawellii* | |
| 50 | Yellow Evodia | *Euodia bonwickii* | |

**ALTERATIONS TO STANDARD TRADE NAMES**

| **Former Name** | **New Name** |
|---|---|
| Northern Hard Quandong | See Hard Quandong |
| Northern Rose Walnut | See Rose Walnut |
| Northern Sassafras | See Sassafras or Grey Sassafras |
| Northern Scentless Rosewood | See Scentless Rosewood |
| Queensland Silver Ash | See Silver Ash |
| Northern Yellow Boxwood | See Yellow Boxwood |

Computer codes for old trade names remain in the system, and are accepted without alteration.

**COMPULSORY HARDWOOD SPECIES**

The listed forest hardwood species can occur in association with rainforest species and adjacent to rainforest margins. When encountered, removal shall be compulsory and debited against allocation. (Such occurrences have been included in inventory assessments and are regarded as part of the rainforest resource for allocation purposes).

| Limit dbhob (cms) | Trade Name Australian Standard 2543-1983 | Botanical Name |
|---|---|---|
| 70 | Broad-leaved Tea-tree | *Melaleuca leucandendron* |
| 70 | Cadaga | *Eucalyptus torrelliana* |
| 70 | Forest Red Gum | *Eucalyptus tereticornis* |
| 70 | Grey Ironbark | *Eucalyptus drepanophylla* |
| 70 | Rose Gum | *Eucalyptus grandis* |
| 70 | *Red Mahogany | *Eucalyptus pellita* |
| 70 | | *Eucalyptus resinfera* |
| 70 | Turpentine | *Syncarpia glomulifera* |
| 60 | White Stringybark | *Eucalyptus phaeotricha* |

*Compulsory Species but at minimum stumpage.

**Non Compulsory Species List**

| Trade Name Australian Standard 2543-1983 | Botanical Name |
|---|---|
| Bignonia | *Deplanchea tetraphylla* |
| Black Silky Oak | *Stenocarpus reticulatus* |
| Blush Satinash | *Eugenia hemilampra* |
| Blush Touriga | *Calophyllum australianum* |
| Blush Walnut | *Beilschmiedia obtusifolia* |
| Blushwood | *Hylandia dockrillii* (formerly Euphorbiaceae) |
| Brown Cudgerie | *Canarium australasicum* |
| Brown Penda | *Xanthostemon chrysanthus* |
| Bumpy Satinash | *Eugenia cormiflora* |
| Buttonwood | *Glochidion ferdinandi etc.* |
| Calendonian Oak | *Carnarvonia araliifolia* |
| Candlenut | *Aleurites moluccana* |
| Coach Walnut formerly included under Brown Walnut) | *Endiandra dichrophylla* (anomalous)<br>*Endiandra glauca*<br>*Endiandra rubescens* syn. *E. montana*<br>*Endiandra tooram* |
| Eumundi Quandong | *Elaeocarpus eumundi* |
| Grey Boxwood | *Drypetes australasica* |
| Grey Sassafras | *Dryadodaphne novoguineensis* |
| Hairy Walnut | *Endiandra pubens* |
| Hard Alder | *Pullea stutzeri* |
| Hickory Boxwood | *Planchonella euphlebia* |
| Incensewood | *Pseudocarapa nitidula* |
| Ivory Mahogany | *Dysoxylum gaudichaudianum* syn. *D. decandrum* |
| Kapok-tree | *Bombax ceiba* |
| Macintyre's Boxwood | *Xanthophyllum octandrum* |
| Pink Sycamore | *Ceratopetalum virchowii* |
| Plum Boxwood | *Chrysophyllum chartaceum* syn. *Niemeyera chartacea* |
| Red Ash | *Alphitonia whitei* |
| Redheart | *Dissiliaria baloghioides* |
| Scaly Ash | *Ganophyllum falcatum* |

| | |
|---|---|
| Scrub Turpentine | *Canarium australianum*<br>*Canarium muelleri* |
| Silky Celtis | *Celtis paniculata* |
| Silver Sycamore | *Cryptocarya glaucescens* |
| Spotted Silky Oak | *Buckinghamia celsissima* |
| Whelan's Silky Oak | *Macadamia whelanii* |