

Description of Environmental Impact Assessment method used in the 2003/04 Environmental Audit of Timber Production on Public Land

1. Objective

The objective of this document is to describe the approach adopted by the independent environmental auditor during assessment of the environmental impact of non-compliance identified during the 2003/2004 Environmental Audit of Timber Production on Public Land. The environmental impacts of the sample are determined within the context of each focus area.

2. Environmental Impact Assessment Method

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method provided in Table 1 as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and should be conducted in consultation with a forest officer.

- The environmental impact assessment is based on the following factors (see Table 1a):
 - Extent of impact or disturbance within the sample (E)
 - Duration of impact or expected time to recover (t)
 - Environmental asset value (z)
- Extent of impact or disturbance
 - The extent of the impact, measured as a relative percentage of the sampled area or length, is divided into four categories.
 - 0 – 10%;
 - 11 – 25%;
 - 26 – 50%; and
 - >50%.
 - A fifth category is used when the coupe impact or disturbance directly connects to a pathway that takes the impact offsite; that is, to an area outside of the gross coupe boundary.
 - When assessing landscape level impacts, specifically water yield protection and coupe aggregation, the impact extent is a function of the area under consideration. For example, 120-hectares with respect to coupe aggregation and 150-hectares when considering capped harvest areas in catchment. In these instances the extent of the impact is measured as a percentage not as an offsite impact.
- Duration of impact or expected time to recover
 - The duration of the impact is defined as the period over which the area will recover to approximate pre-impacted levels. The impact period is divided into three levels,
 - Short term 0 – 12 months;
 - Medium term 12 – 36 months; and
 - Long term > 3 years.

- Environmental asset value
 - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by the protection provided for it within the code. The environmental asset value is divided into four categories (see Table 1b);
 - general environmental value, i.e. general harvesting area of coupe or GMZ;
 - filter or drainage line;
 - representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers; and
 - specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.
 - When assessing a buffer with a width greater than that required by the code, the purpose of the wider buffer must be determined. Where the purpose of that extra reserve aligns with a stated goal of the code of forest practice; i.e. increased stream buffer width due to slope and soil erosion hazard, then the environmental asset value must reflect this. If the additional protected area does not align with a code criterion, i.e. a 40 metre buffer being installed where there is a requirement of only 20 metres, due to the presence of unmerchantable timber, then the environmental asset value requiring protection is still that area within 20 metres of the permanent stream.
- Assessed environmental impact
 - Following estimation of the duration of impact, the extent of impact and the environmental values affected, the level of the environment impact is estimated. The impact is categorised into five nominal levels;
 - Negligible;
 - Minor;
 - Moderate;
 - Major; and
 - Severe.

TABLE 1: ENVIRONMENTAL IMPACT ASSESSMENT

Table 1a: Determining the Extent-duration of the Impact

| Extent of Impact (E) | Duration of Impact (t) | | |
|----------------------|----------------------------------|------------------------------------|----------------------------------|
| | Short Term <i>0-12 months</i> | Medium Term <i>12-36 months</i> | Long Term <i>> 3 years</i> |
| 0 - 10% | A | C | F |
| 11 - 25% | B | E | H |
| 26 - 50% | C | F | I |
| > 50% | D | G | J |
| Off-site | E | H | K |

Table 1b: Estimating the Level of the Environmental Impact

| Et Value | Environmental Asset Value (z) | | | |
|----------|-------------------------------|------------|----------------|----------------|
| | General | Filter | rSPZ / LR / LB | sSPZ / RB / RF |
| A | Negligible | Negligible | Minor | Minor |
| B | Negligible | Minor | Moderate | Moderate |
| C | Negligible | Minor | Moderate | Moderate |
| D | Negligible | Moderate | Moderate | Moderate |
| E | Minor | Moderate | Moderate | Major |
| F | Minor | Moderate | Major | Major |
| G | Moderate | Moderate | Major | Major |
| H | Moderate | Major | Major | Major |
| I | Moderate | Major | Major | Severe |
| J | Moderate | Major | Severe | Severe |
| K | Major | Major | Severe | Severe |

Key:

- LR Linear reserve
- LB Landscape buffer
- RB Riparian buffer
- RF Rainforest buffer
- rSPZ Representative special protection zone
- sSPZ Specific special protection zone

3. Focus Area Environmental Impact Assessment Examples

3.1 Coupe Planning

- Planning elements will be assessed where an operational non-compliance has been identified. For example, if the soil erosion hazard was set at 'medium' when it should have been 'high', the prescriptive requirements for drainage structures would change, possibly resulting in a larger extent of impact and therefore a greater environmental impact.

3.2 Wood Utilisation Planning

- Coupe aggregation resulted in a combined GMZ area of 150 hectares and the threshold area was limited to being not more than 120 hectares, the estimated environmental impact would be;

| | |
|--|---------------------------|
| Extent of impact (E) | 11-25% (25% over-harvest) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | General |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |

3.3 Water Yield Protection

- Operation of a coupe within a water catchment resulted in an increase in the net harvested area within the catchment of 20 hectares over the stated 150 hectares limit.

| | |
|--|---------------------------|
| Extent of impact (E) | 11-25% (13% over-harvest) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | General |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |

3.4 Log Landings and Dumps

- During assessment of two landings of equal area (0.25 ha), it was observed that one landing was not adequately rehabilitated due to failure to re-spread topsoil. In this instance, one landing was found to be non-compliant whilst the other was compliant.

| | |
|--|-------------------------------|
| Extent of impact (E) | 26-50% (50%: 0.25 of 0.50 ha) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | General |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |

3.5 Boundary Tracks

- Drainage structures had not been installed or were inadequate along 60 m of a 200 m sample in an area of medium soil erosion hazard.

| | |
|--|----------------------------|
| Extent of impact (E) | 26-50% (30%: 60/200 m) |
| Duration of impact (t) | Medium Term (12-36 months) |
| Environmental asset value (z) | General |
| <i>Environmental impact assessment level</i> | <i>Minor</i> |

3.6 Habitat Trees

- A requirement for 15 habitat trees per hectare had not been met on a coupe, with only 5 trees per hectare being retained after consideration of their location within the coupe.

| | |
|--|-----------------------------|
| Extent of impact (E) | >50% (67%: [15-5]/15 trees) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | General |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |

3.7 Protection and Marking of Area Exclusions

- Measurement of a 200 m length of streamside reserve determined that 55 m of the sample had not been marked. Inspection of the section of unmarked buffer determined that an area of suitable width had not been breached.

| | |
|--|-----------------------------|
| Extent of impact (E) | 26-50% (28%: 55/200 m) |
| Duration of impact (t) | No Impact |
| Environmental asset value (z) | sSPZ / RB / Riparian Buffer |
| <i>Environmental impact assessment level</i> | <i>Negligible</i> |

3.8 Reserved Area Protection – Filters

- A machine entry was noted within a 20 x 5 metre section of filter strip, approximating an area of 100 m². The machine's blade had not cut the soil surface and the remaining 80 m of filter strip (800 m²) was unaffected.

| | |
|--|---------------------------------------|
| Extent of impact (E) | 11-25% (13%: 100/800 m ²) |
| Duration of impact (t) | Short Term (0-12 months) |
| Environmental asset value (z) | Filter |
| <i>Environmental impact assessment level</i> | <i>Minor</i> |

3.9 Reserved Area Protection – Buffers

- Example 1.
Within a sample of 180 m (approximately 3,600 m²) of a 20 m wide streamside reserve, the measured buffer width was only 15 m. A length of 50-metres had been harvested (250 m²) to the marking tapes.

| | |
|--|-----------------------------|
| Extent of impact (E) | 0-10% (7%: 250/3600 m) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | sSPZ / Riparian Buffer / RF |
| <i>Environmental impact assessment level</i> | <i>Major</i> |

- Example 2.

Within a 200 m sample of 20 m-wide streamside reserve (approximately 4,000 m²), there had been a 10 m entry by a dozer with the blade down, resulting in surface damage and soil being pushed into the buffer. The measured area affected was 50 m² (5 x 10 m) and the pushed-up soil covered an area of around 10 m² (5 x 2 m).

| | |
|--|---|
| Extent of impact (E) | 0-10% (2%: (50+10)/4,000 m ²) |
| Duration of impact (t) | Medium Term (12-36 months) |
| Environmental asset value (z) | sSPZ / Riparian Buffer / RF |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |

3.10 Rainforest Protection

- Example 1.

A 200 m section of 40 m-wide rainforest buffer (200 x 40 = 8,000 m²) was sampled and found to be only 30 m wide in two sections totalling 75 m in length. Harvesting had run to the marking tapes along the 200 m of buffer sampled.

| | |
|--|--|
| Extent of impact (E) | 0-10% (9%: (75x10)/8000 m ²) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | sSPZ / Riparian Buffer / RF |
| <i>Environmental impact assessment level</i> | <i>Major</i> |

- Example 2.

A 200 m section of 40 m-wide rainforest buffer (200x40 = 8,000 m²) was sampled and found to be only 20 m wide in two sections totalling 120 m in length. Harvesting has run to the buffer marking tapes along the 200 m of sampled section.

| | |
|--|---|
| Extent of impact (E) | 26-50% (30%: (120x20)/8000 m ²) |
| Duration of impact (t) | Long Term (>3 years) |
| Environmental asset value (z) | sSPZ / Riparian Buffer / RF |
| <i>Environmental impact assessment level</i> | <i>Severe</i> |

3.11 Snig and Forwarding Tracks

- Two drainage structures within a 120 m section of snig track were ineffective, resulting in a length of 60 m being non-compliant. The soil erosion hazard was high and the non-compliant section was in close proximity to an internal drainage line such that water from the snig track discharged directly into the drainage line.

| | |
|--|----------------------------|
| Extent of impact (E) | 26-50% (50%: 60/120 m) |
| Duration of impact (t) | Medium Term (12-36 months) |
| Environmental asset value (z) | Filter |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |

- Example 2

Inspection of a 160 m snig track identified one ineffective drainage structure, resulting in a length of 40 m being non-compliant. The soil erosion hazard was low and the non-compliant section was located within the coupe and was not close to any significant areas.

| | |
|--|----------------------------|
| Extent of impact (E) | 11-25% (25%: 40/160 m) |
| Duration of impact (t) | Medium Term (12-36 months) |
| Environmental asset value (z) | General |
| <i>Environmental impact assessment level</i> | <i>Minor</i> |

3.12 Roding

- Inspection of 500 metres of internal road identified several ineffective drainage structures, resulting in a length of 140 m being non-compliant. The soil erosion hazard was medium and the non-compliant section was in close proximity to an internal drainage line, such that water from the road discharged directly into the drainage line. The coupe was closed and the road was used only for management access for monitoring of regeneration.

| | |
|--|----------------------------|
| Extent of impact (E) | 26-50% (28%: 140/500 m) |
| Duration of impact (t) | Medium Term (12-36 months) |
| Environmental asset value (z) | Filter |
| <i>Environmental impact assessment level</i> | <i>Moderate</i> |