

6.13 Appendices

6.13.1 Example Qualitative Vulnerability Tables

Expand All | Collapse All

Example vulnerability ratings for a forest road

Examples of factors to consider: Important factors include the type of hazard event(s), utilization of the road, duration of disruption, availability of alternative routes, direct and indirect costs, and extent of damage.

Table 6-4 Example vulnerability ratings for a forest road

Vulnerability Ratings	Examples
High damage	<ul style="list-style-type: none"> • Destruction of, or extensive (not easily repairable) damage to, active forest road, OR • Long-term (> 1 week) disruption to forest road.
Moderate damage	<ul style="list-style-type: none"> • Moderate (easily repairable) damage to active forest road, OR • Excessive damage (non-repairable) to non-active forest road, OR • Short-term (1 day – 1 week) disruption to forest road
Low damage	<ul style="list-style-type: none"> • Minor (inconvenient) damage to forest road, OR • Moderate (repairable) damage to non-active forest road, OR • Very short (< 1 day) disruption to forest road.

Example vulnerability ratings for water supply through licensed water intakes

Examples of factors to consider: Important factors include type of hazard event(s), amount of sedimentation, duration of sedimentation, water quality and quantity, extent of damage to works, intake and storage, effect on chlorinating, cumulative effects (previous slides), and availability of alternative sources of water supply.

Table 6-5 Example vulnerability ratings for water supply through licensed water intakes

Vulnerability Ratings	Examples
High damage	<ul style="list-style-type: none"> • Permanent loss of quality, short-term loss of supply.
Moderate damage	<ul style="list-style-type: none"> • Short-term disruption of quality, short-term loss of supply.
Low damage	<ul style="list-style-type: none"> • Water quality degraded but potable; no disruption or damage to water supply infrastructure, effect < 1 day.

Example vulnerability ratings for fish habitat (includes riparian management area)

Examples of factors to consider:

- Important factors include type of hazard event(s), amount of sedimentation, duration of sedimentation, hydraulic connectivity, location of affected area relative to fish stream or watercourse connected to fish stream, deposition zone size/volume, and type of deposition material.
- For a high vulnerability rating:
 - consider where the permanent loss is located (directly or indirectly downslope of a failure site);
 - consider the stream channel and the riparian zone; and
 - consider the requirements of the federal Fisheries Act.

Table 6-6 Example vulnerability ratings for fish habitat (includes riparian management area)

Vulnerability Ratings	Examples
High Damage	<ul style="list-style-type: none"> • Permanent loss of habitat, likely not feasible to restore habitat, but sediment should be controlled at source.
Moderate Damage	<ul style="list-style-type: none"> • Habitat damaged but can be restored through intervention; source of sediment can be controlled.
Low Damage	<ul style="list-style-type: none"> • Limited habitat damage that can be eliminated or controlled through natural processes within 1 year. Source of sediment can be restored to pre-landslide condition through minor work (e.g., grass seeding,

silt fences).

Example vulnerability ratings for wildlife (non-fish) habitat and migration

Examples of factors to consider:

- For a landslide hazard, important factors include landslide path, area of landslide track, and type of deposition material. Other factors to consider include landslide path, area of landslide track, type of deposition material, species present, species status (red to yellow), rarity of affected habitat, and size of home range.
- The major effect of a landslide event on wildlife is on the habitat of that species, or on the habitat of the species on which it depends. Effects on migrating wildlife are minimal.
- Is rehabilitation/mitigation possible? Successful mitigation depends on species and habitat.

Table 6-7 Example vulnerability ratings for wildlife (non-fish) habitat and migration

Vulnerability Ratings	Examples
High Damage	<ul style="list-style-type: none">• The affected species is rare, endangered, or a management concern (e.g., identified wildlife), OR• Permanent loss of habitat or migration route; likely not feasible to restore habitat, OR• Permanent adverse effects on wildlife population need to be assessed, OR• The affected area is large relative to the locally available habitat and/or the affected habitat is rare (there is no suitable adjacent habitat).
Moderate Damage	<ul style="list-style-type: none">• Habitat damaged or migration route temporarily interrupted but can be restored through intervention, OR• Wildlife populations are disrupted but there are no permanent effects on population, OR• The affected species is not rare or endangered, although it may be of management concern (e.g., identified wildlife), OR• The affected area is being managed for wildlife, has been set aside for wildlife, or has been identified as wildlife habitat (in a resource plan).
Low Damage	<ul style="list-style-type: none">• Limited damage to habitat; no disruption to migration route, OR• Damage could be restored through natural processes within one growing season, OR

- The wildlife species is not of management concern (e.g., it has not been designated as rare or endangered, or as identified wildlife), OR
- The affected area is not being managed for wildlife, has not been set aside for wildlife, and has not been identified as wildlife habitat (in a resource plan).

Example vulnerability ratings for visual resources in a scenic area

Examples of factors to consider:

- For a landslide hazard important factors include expected landslide path, size and numbers of landslides in perspective view area, and duration of visible adverse effects on scenic areas.
- Applies only where there is reasonable expectation for visible alteration of the landscape in scenic areas (there are no legal obligations to manage visual resources outside a scenic area).
- Criteria used to develop Visual Sensitivity Class (VSC) ratings include: visual absorption capability (the measure of the landscape's ability to accept change), biophysical rating (measure of topographical relief and vegetation variety), viewing condition (viewing duration and proximity), and viewer rating (numbers of people and their expectations).

Table 6-8 Example vulnerability ratings for visual resources in a scenic area

Vulnerability Ratings	Examples
High Damage	<ul style="list-style-type: none"> • Visible site disturbance of any amount within a scenic area designated as Visual Sensitivity Class (VSC) 1 or 2.
Moderate Damage	<ul style="list-style-type: none"> • Visible site disturbance up to 7% of the landform area as measured in perspective view (for both in-block and landform situations) within a scenic area designated as Visual Sensitivity Class (VSC) 3 or 4, and where visible adverse effect on a scenic area should have disappeared by the time visually effective green-up is achieved.
Low Damage	<ul style="list-style-type: none"> • Visible site disturbance up to 15% of the landform area as measured in perspective view (for both in-block and landform situations) within a scenic area designated as Visual Sensitivity Class (VSC) 5, and where visible adverse effect on a scenic area may not have disappeared by the time visually effective green-up is achieved.

Example vulnerability ratings for timber

Examples of factors to consider:

- For a landslide hazard, an important factor is landslide size. Other factors to consider include the age of merchantable timber, and time remaining to reach a harvestable state.
- It is assumed that areas of high-value timber directly correlate to areas of high soil productivity.

Table 6-9 Example vulnerability ratings for timber

Vulnerability Ratings	Examples
High Damage	<ul style="list-style-type: none"> • Destruction of mature harvestable timber stands and the timber value is in the top one-third for the region (implies a high site productivity area), and the ground area adversely affected by the landslide is large.
Moderate Damage	<ul style="list-style-type: none"> • Destruction of mature harvestable timber stand and the timber value is in the middle third for the region, and the ground area adversely affected by the landslide is large, OR • Destruction of juvenile timber stands that are within about 20-35 years of potential harvest and the future timber value at a harvestable stage will be in the top or middle third for the region, and the ground area adversely affected by the landslide is large.
Low Damage	<ul style="list-style-type: none"> • Destruction of mature harvestable timber stands and the timber value is in the top third for the region, and the ground area adversely affected by the landslide is small, OR • Destruction of mature harvestable timber stands and the timber value is in the bottom third for the region (implies a low site productivity area), and the ground area adversely affected by the landslide is large, OR • Destruction of juvenile timber stands that are more than 35 years away from potential harvest and the future timber value at a harvestable stage will be in the top or middle third for the region, and the ground area adversely affected by the landslide is large.

6.13.2 Project Tracking Checklist

Use this checklist to prepare a paper trail of key outputs prepared by consultants and sign-offs by the ministry.

- [Project Tracking Checklist \(PDF\)](#)