



Windthrow Field Cards: Reference Pages A & B, Assessment Pages A & B, Calibration Page and Prescription Pages can be used in conjunction with the Forest Service Windthrow Management Training, or on a stand-alone basis.

Definitions

- 'Biophysical Hazard' is the combination of the topographic, soils, and stand hazard components. It represents the intrinsic windloading and wind stability of trees on the site prior to treatment.
- 'Treatment Risk' is the way in which a particular treatment increases or decreases the windloading or wind resistance of trees. (For example, boundaries that run at right angles to damaging wind direction at the downwind end of a clearcut are high-risk treatments.)
- 'Windthrow Risk' is the likelihood of damage from endemic winds. It is the combination of Biophysical Hazard and Treatment Risk.
- 'Endemic' winds are peak winds expected to recur every year or so in a given location, as distinct from 'Catastrophic' winds, which recur very infrequently. If a portion of your operating area shows a pattern of repeated edge windthrow or salvage over a period of several years, you have a problem of endemic windthrow.
- 'Impact' is the consequence of wind damage. If wind damage conflicts with your management objectives, the impact is negative. Depending on your objectives, some level of damage may be acceptable.

Assessment Steps

1. Observe windthrow patterns at the landscape and stand level to determine orientation and recurrence of damaging winds.
2. Where there are nearby harvested blocks, calibrate the assessment on a High Treatment Risk boundary, then compare expected damage for the estimated Windthrow Risk Class with the observed damage and adjust Component Biophysical Hazard Classes if necessary.
3. Divide the boundary of a proposed clearcut into segments, or the interior of a proposed partial cut into portions that have similar biophysical and treatment characteristics.
4. i) Assess Treatment Risk for each segment/portion (boundary segments include adjacent stand).
ii) Assess Biophysical Hazard Components for each segment/portion.
iii) Integrate Biophysical Hazard Components using Grid.
iv) Integrate Biophysical Hazard with Treatment Risk to estimate Windthrow Risk
5. Consider the management objectives for each segment/portion, the acceptability of damage, and the level of damage expected for the Windthrow Risk class you have estimated.
6. If the level of expected damage exceeds the acceptable level, recommend treatment modifications.
7. Set up a feedback loop where damage, assessment predictions, and treatments are monitored to enable improved windthrow prediction and management in your area.

Grids

Site Hazard	Biophysical Hazard	Windthrow Triangle	Windthrow Risk																																																															
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Windthrow Risk Class	Expected Damage Caused by Endemic Winds
None	No stand present to be damaged by winds.
Low	Little or no damage along recent cutblock edges.
Moderate	Partial damage along recent cutblock edges. Between 10 and 70 percent of the trees are uprooted or snapped within the first tree length in from the edge.
High	Heavy damage along recent cutblock edges. More than 70 percent of the trees within the first tree length damaged.
Very high	Very severe damage along recent cutblock edges. More than 70 percent of the trees damaged in both the first and second tree lengths into the edge.

Notes on Field Cards

The field cards can be filled out for each clearcut edge segment or partial cut portion, or simply use these cards as a checklist.

- ♦ In the boxes for recording Topography, Soil, and Stand attributes, indicator values are grouped into three columns representing High, Moderate, and Low hazard. This grouping is made to suggest the relative hazard of these indicator values. The relationship between indicators and hazard class will vary from place to place so common sense and local experience (assisted by the Diagnostic Questions) should be used in estimating the component Biophysical Hazards.
- ♦ The calibration step is important in refining the Biophysical Hazard classification. The logic underlying the assessment framework is as follows. Where site conditions and management actions in an area proposed for treatment are similar to those of an area treated in the past, a similar pattern of damage is expected.
- ♦ A more detailed discussion of the assessment framework can be found in '*A diagnostic framework for windthrow risk estimation.*' S.J.Mitchell In Forestry Chronicle 74 : 100-105 (January/February 1998).
- ♦ Card users wanting to improve their knowledge of windthrow assessment and management are referred to the BC Forestry Continuing Studies '*Windthrow Management Workshop*' and '*Windthrow Prescription Workshop.*'

Topographic Terms

