

Appendix 2. Arctic Boreal Vulnerability Experiment’s Landsat-derived annual dominant land cover classification definitions (Wang et al. 2019). Flammability emphasis (bold italics) asserted for hazard rating.

Table 1. Original ABoVE Landsat-derived annual dominant land cover classification (Wang et al. 2019) definitions for wildfire hazard and exposure assessment.

Land cover	Description
Evergreen Forest	Area dominated by tall woody vegetation (> 3 m tall) and over 60% canopy coverage with primarily (> 75%) evergreen phenological habit (canopy maintains green foliage year-round). Maximum crown fire potential with long-range spotting.
Deciduous Forest	Area dominated by tall woody vegetation (> 3 m tall) and over 60% canopy coverage with primarily (> 75%) deciduous phenological habit (annual cycle of leaf-on and leaf-off periods). Primarily low-to-moderate surface fire intensity.
Mixed Forest	Area dominated by tall woody vegetation (> 3 m tall) and over 60% canopy coverage with neither forest type (deciduous or evergreen) exceeding 60% of the area. Significant crown fire potential with long-range spotting.
Woodland	Area dominated by tall woody vegetation (> 3 m tall) with between 30–60% canopy coverage. Frequently coexists with peatlands and typically, but not always, evergreen in phenological habit. Maximum torching and long-range spotting potential
Low Shrub	Area dominated by dense hemi-prostrate to low-erect shrubs (5–30 cm in height) with > 60% area coverage. Analogous to “prostrate dwarf-shrub” and primarily occurring in tundra areas. Primarily low-to-moderate surface fire intensity and limited ember dispersal.
Tall Shrub	Area dominated by woody vegetation between 50 cm and 3 m tall and shrub canopy coverage > 60% coverage. Typically, but not always, deciduous phenological habits. Primarily low-to-moderate surface fire intensity and limited ember dispersal.
Open Shrubs	Area with woody vegetation less than 3 m tall and between 30–60% canopy coverage. Shrubs typically underlain by herbaceous or barren land cover. Intense surface fire. Moderate torching and short-range spotting potential with limited ember dispersal.
Herbaceous	Area dominated by herbaceous land cover greater than 60% land cover and tree/shrub cover less than 10%. Primarily low-to-moderate surface fire intensity and limited ember dispersal.
Tussock Tundra	Tundra-specific herbaceous land dominated by <i>Eriophorum vaginatum</i> and other tussock-forming herbaceous species, coverage over 60%. Intense surface fire. Moderate torching and short-range spotting potential with limited ember dispersal.
Sparsely Vegetated	10–30% canopy coverage, any vegetation but typically herbaceous/bryophyte, with rock underneath. May include other flammable materials in developed areas. Generally limited potential for low surface fire intensity.
Fen	Hydrologically connected, sedge/grass dominated wetland. Intense surface fire. Moderate torching and short-range spotting potential with limited ember dispersal.
Bog	Ombrotrophic, peat and shrub dominated wetland. Generally limited potential for low surface fire intensity. Generally limited potential for low surface fire intensity.
Shallows, littoral	Lakes < 1m deep with some vegetation or shoreline mixed with water/land. Generally considered a barrier to fire spread.
Barren	< 10% vegetation, mostly rock. Generally considered a barrier to fire spread. Generally considered a barrier to fire spread.
Water	Oceans, lakes, and rivers, either salt-water or freshwater. Generally considered a barrier to fire spread.
NA (Ice/Snow)	Glaciers and high elevation snow cover. Generally considered a barrier to fire spread.

Table 2. Enhancements to the ABoVE Landsat-derived annual dominant land cover classification (Wang et al. 2019) definitions for wildfire hazard and exposure assessment.

Land cover	Description
Evergreen Forest: Black Spruce	In the Anchorage and Fairbanks areas. Black spruce is considered the most flammable of evergreen forest vegetation. Analysis of ancillary data informed the distinction. <i>Exceptional crown fire potential with long-range spotting.</i>
Evergreen Forest: Hemlock	In the Anchorage area. Analysis of ancillary data informed the distinction. Hemlock is considered a less flammable type than other evergreen forest vegetation. <i>Intense surface fire. Moderate torching and short-range spotting potential with limited ember dispersal.</i>
Evergreen Forest: Lodgepole Pine	In the Whitehorse area. Evergreen forests where Lodgepole pine comprises a plurality of canopy species cover. Analysis of ancillary data informed the distinction. <i>Maximum crown fire potential with long-range spotting.</i>
Evergreen Forest: Subalpine Fir	In the Whitehorse area. Subalpine fir is at a high elevation among lower flammability shrubs, sparse vegetation, and barren cover. Analysis of ancillary data informed the distinction. <i>Significant crown fire potential with long-range spotting.</i>

References:

Wang JA, Sulla-Menashe D, Woodcock CE, Sonnentag O, Keeling RF, Friedl MA (2019) ABoVE: Landsat-derived Annual Dominant Land Cover Across ABoVE Core Domain, 1984-2014. In: ORNL Distributed Active Archive Center.
https://daac.ornl.gov/ABOVE/guides/Annual_Landcover_ABoVE.html Accessed May 2023