

3.4.7 TAIGA SHIELD MID-BOREAL (MB) ECOREGION



Moist to wet, fine-textured and fertile lacustrine and alluvial soils surround granitic bedrock knobs in the Taiga Shield Mid-Boreal (MB) Ecoregion. Dense mixed-wood and pure deciduous and conifer stands with diverse understories develop on these soils. The dry exposed rock knobs (whitish patches in the foreground and background) have scattered jack pine and black spruce, and are usually lichen covered. Imperfectly- to poorly-drained wet sites support dense to open forests of black spruce, larch and paper birch with shrub, lichen and moss understories. Marshes, shrub fens and sedge fens are common and extensive. Brunisolic and Regosolic soils are associated with well-drained sites, and Gleysols and Organic soils are found on poorly-drained mineral and organic deposits.



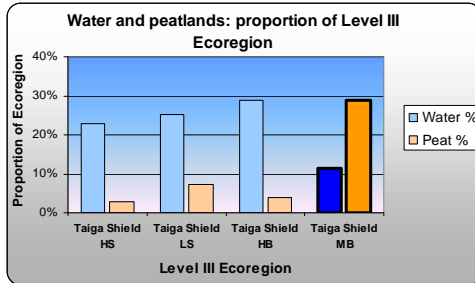
Mixed or pure forests of aspen, white spruce, jack pine, balsam poplar, paper birch, black spruce and larch occur on upland sites throughout the Taiga Shield MB Ecoregion. Diverse and lush shrub and herbaceous understories typically include willow, green alder, wild sarsaparilla, bunchberry, prickly rose, bog cranberry and common Labrador tea.



Wild red raspberry (*Rubus idaeus*), a small to medium-sized shrub, favours open woodlands, riverbanks, clearings and burns. It occurs throughout the Taiga Shield but is most common in the Taiga Shield MB Ecoregion.

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Overview: *The Taiga Shield MB Ecoregion in the extreme southwest corner of the Northwest Territories Taiga Shield has a relatively warm climate, reflected by vigorous mixed-wood, deciduous and coniferous forests and extensive wetlands within a complex of low bedrock exposures and lacustrine or alluvial deposits.*



Total area: 6,639 km² (2% of Taiga Shield).
Ecoregion shown in red.

General Description

The Level III Taiga Shield MB Ecoregion occupies a small area in the extreme southwest of the Northwest Territories Taiga Shield, and includes one Level IV ecoregion. It occupies the westernmost part of a former bay of Glacial Lake McConnell, which has over time partially filled with fine-textured lacustrine and alluvial materials. Exposed Precambrian Shield bedrock is characteristic of this Ecoregion and differentiates it from the climatically and ecologically similar Level IV Slave Lowland MB Ecoregion of the Taiga Plains to the west.

Climate

The Taiga Shield MB Ecoregion is classified as having a Mid-Boreal climate (Ecoregions Working Group 1989, Bradley *et al.* 1982). Fort Smith is the only station close to the Taiga Shield, and climate models developed by Agriculture and Agri-Food Canada (1997) for the area that includes the Ecoregion provide the following statistics. The mean annual temperature is -3.5°C . The mean temperature in January, the coldest month, is -22°C , and the mean temperature is 16°C in July, the warmest month. Mean annual precipitation is between 330 and 360 mm, with the wettest period in May through October; about 60 percent falls as rain and 40 percent as snow. The mean annual daily solar input (refer to Section 1.4.1 for further explanation) lies between 10 and 11 $\text{mJ}/\text{m}^2/\text{day}$, with low values of 1 to 1.2 $\text{mJ}/\text{m}^2/\text{day}$ in December and highs of between 21 and 22 $\text{mJ}/\text{m}^2/\text{day}$ in June.

Topography, Geology, Soils, and Hydrology

Rolling bedrock plains with small pockets of lacustrine sediments in low areas are the dominant landform in the northern half. Towards the south, bedrock exposures become lower and more widely separated, and near Fort Smith they are only present as scattered islands on a level lacustrine and fluvial plain. Peatlands cover nearly a third of the Taiga Shield MB Ecoregion, in sharp contrast to other Level III ecoregions within the Taiga Shield that average about five percent.

Vegetation

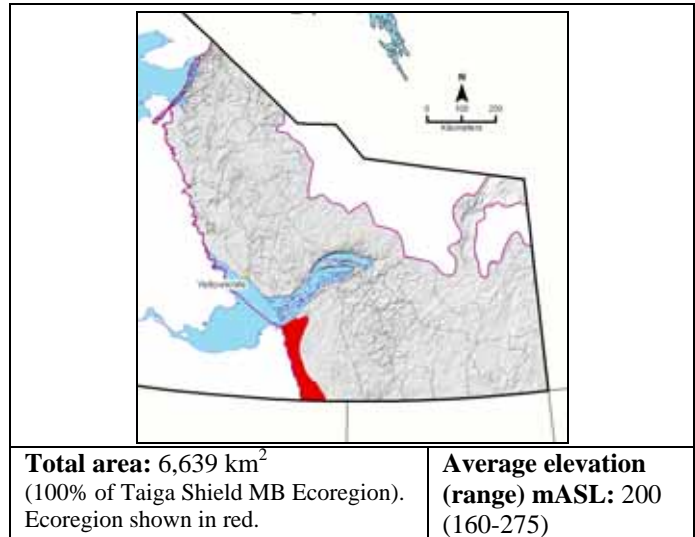
Productive mixed-wood, deciduous and coniferous stands occur on imperfectly- to well-drained lacustrine and fluvial deposits and are most extensive in the southern half of the Ecoregion. Jack pine and black spruce grow as scattered individuals or in small stands on shallow soils over bedrock, along bedrock fractures or on outwash sands. High water tables in the southern half support extensive wetland development. Appendix 2 summarizes the major plant community types.

3.4.7.1 Slave Plain MB Ecoregion

Overview: *The Slave Plain MB Ecoregion is a low-relief, low-elevation bedrock plain with lacustrine, alluvial, and organic deposits that support vigorous deciduous, mixed-wood and coniferous forests and extensive sedge and shrub fens.*

Summary:

- Low-relief bedrock plain with lacustrine, alluvial and organic deposits between outcrops.
- Diverse and vigorous mixed-wood, white spruce and aspen forests on drier sites between outcrops, jack pine and black spruce woodlands on rock outcrops and horizontal fens on wet sites.



General Description

The Slave Plain MB Ecoregion³⁴ is a low-elevation, low-relief bedrock plain paralleling the Slave River and is the southwestern-most Level IV ecoregion in the Northwest Territories Taiga Shield. Its western boundary separates the Taiga Shield from the Taiga Plains, which has similar vegetation and parent materials but no bedrock outcrops. A slight increase in elevation and a rapid decrease in the occurrence and extent of mixed-wood forests and horizontal fens mark its eastern boundary with the Rutledge Upland HB Ecoregion. The northern boundary of the Ecoregion is the south shore of the East Arm of Great Slave Lake.³⁵ Diverse and vigorous mixed-wood, coniferous and deciduous stands grow on rich, moist alluvial and lacustrine deposits, with black spruce or jack pine woodlands on bedrock and extensive willow – sedge fens on wet lowland sites.

Geology and Geomorphology

The dominant bedrock type in the Ecoregion is Precambrian intrusive rock; sedimentary rock underlies Tsu and Thubun Lakes. All but the hilly southwestern corner of the Ecoregion was inundated by Glacial Lake McConnell. The Slave and Taltson Rivers deposit fine-textured alluvial and lacustrine materials between rock outcrops in western portions. Bedrock exposures are islands surrounded by lacustrine, alluvial and organic deposits in the southwest corner, but rolling bedrock plains become a dominant feature from Tsu Lake north, towards the eastern border, and in the low hill system in the southeast corner.

Soils

Soils on lacustrine materials belong to the Fort Smith association of sand to loam textured calcareous Brunisols (well-drained sites) and Gleysols (poorly drained sites) (Bradley *et al.* 1982). Soils on alluvial materials belong to the Norberta association of sandy-textured calcareous Regosols. Taltson River (peat) soils occur with peat plateaus, but permafrost is uncommon.

Vegetation

In the southwest corner where moist, calcareous lacustrine and alluvial deposits are most extensive, stands of tall white spruce, mixed aspen – spruce and pure trembling aspen and balsam poplar occupy upland sites; southern boreal understory species such as low-bush cranberry, twinflower and northern bedstraw are common associates. To the north and east, these stands become patchier as bedrock exposures increase, and rock lichen woodlands with stunted black spruce, jack pine, low shrubs and lichens become more common. Horizontal sedge and willow fens are also most extensive in the southwest corner.

Water and Wetlands

The three largest water bodies in the Ecoregion are the Thubun Lakes, Deskenatlata Lake and Tsu Lake. The Taltson River drains westward across the Ecoregion and parallels its western boundary northward to Great Slave Lake. Wetlands are a prominent feature, covering over 50 percent of the area south of Tsu Lake.

Notable Features

The greatest diversity of vegetation and wildlife in the Northwest Territories Taiga Shield likely occurs along the ecotone where the west side of this Ecoregion meets the east boundary of the Taiga Plains Slave River Lowland MB Ecoregion.

³⁴ This Ecoregion contains the Tsu-Slave Ecodistrict of Bradley *et al.* (1982), from which some of the descriptive information is derived.

³⁵ Mid-Boreal climates appear to influence the southern islands of East Arm as indicated by patchy deciduous and mixed-wood forests.



The Slave Plain MB Ecoregion includes a diverse array of plant communities. This landscape just east of Fort Smith in the southwest corner is a mosaic of light green sedge – willow fens, tall trembling aspen and white spruce forests, and small bedrock islands with jackpine and lichen communities.



The northern half of the Ecoregion is bedrock dominated, and wetlands and forests are patchy. This recently burned landscape includes bright green floating sedge fens, trembling aspen stands, and jack pine – lichen woodlands on bedrock knobs.



The southwest corner of the Ecoregion is more rugged terrain, with a mix of deciduous, mixed-wood and white spruce forests on lacustrine veneers and jack pine on bedrock outcrops.



Trembling aspen stands in the Slave Plain MB Ecoregion are similar to those found further south in the Boreal forest, with low-bush cranberry, prickly rose, green alder, and a variety of grasses and forbs.



Ground-nesting Savannah Sparrows are summer breeding residents of the Taiga Shield. They occur in open country habitats such as meadows, marshes, bogs, shrublands and tundra. *Photo: J. Nagy.*



Common Ravens range throughout the Taiga Shield. They are especially abundant in and around communities where their omnivorous diet and resourcefulness enable them to thrive. *Photo: D. Downing.*



Arctic Terns breed throughout the Taiga Shield. They are most common in tundra areas and are famous for their yearly round trip migrations of up to 40,000 kilometers to and from Arctic breeding grounds and Antarctic wintering areas. *Photo: A. Hall.*



Red squirrels range throughout Canada's boreal coniferous forests. In the Taiga Shield, they occur wherever sufficient coniferous trees are present to provide necessary habitat. *Photo: T. VanDam.*



Timber wolves establish and maintain territorial home ranges and rely heavily on moose. Transient tundra wolves depend largely on migratory barren-ground caribou. Both types occur in the Taiga Shield. *Photo: GNWT.*



The Taiga Shield provides important habitat for barren-ground caribou, especially winter range for most of the herds found in the Northwest Territories. The survival and abundance of many other wildlife species are dependent on this "keystone" species. *Photo: A. Gunn.*