Appendix 2

Keys to the Biophysical Classification of Peatlands

Level 1
Wetland Classes

The Canada Wetland Registry (Tarnocai 1979 and 1980) has defined five distinct wetland classes: bog, fen, marsh, swamp, and shallow water. The classes are distinguished mainly by soil type, nutrient regime, and moisture regime. Of the five wetland classes, three may also be defined as peatlands. These must have a one foot (30 cm) or greater deposition of peat. For the purpose of this Peatland Inventory, only these three; bog, fen and swamp, will be considered further. The following key to wetland classes has been prepared from definitions used by the Canada Wetland Registry.

Key to Wetland Classes

A1 Main source of nutrient supply, rain water. Virtually isolated from nutrient-rich ground water. (Nutrient-poor) (ombrotrophic)

Peat covered or peat filled wetland with a high water table, at or near the surface. Develops on acid peat, forming level, raised or sloping surfaces with hummocks and wet hollows usually overlain by sphagnum and supporting a layer of ericaceous shrubs, with or without trees less than 30 feet (10 m) in height. Dominant peat materials are poorly to moderately humified *Sphagnum* and forest peat underlain at times by fen peat.

Bog

A2 Main source of nutrients through groundwater, runoff, or flowing water. Main source of nutrient supply, seepage. Restricted supply of nutrients-moderate groundwater. (Nutrient-moderate) (mesotrophic)

Peat covered or peat filled wetland with a high water table usually at or slightly above the surface. Surface relatively uniform and consolidated, occasionally with sub-parallel ridges or elevated islands, linear drainage features, and dispersed small ponds. Surface vegetation consists predominantly of sedges and brown mosses with some shrubs and at times trees less than 10 metres in height.Occurrence of *Sphagnum* is little to none. Grasses and reeds are usually associated with small ponds. Peat materials are shallow to deep, well to moderately decomposed fen peat.

Fen

A3 Main source of nutrient supply is flowing water. Subject to seasonal or periodic inundation of nutrient rich ground water. (Nutrient-rich) (minerotrophic)

B Dominant vegetation emergent, non-woody plants such as rushes, reeds, reed grasses, and sedges. Moss and tree cover are insignificant.

An unconsolidated open, flat to depressional, mineral or peat filled wetland, typically covered with clumps of emergent sedges, grasses and reeds interspersed in standing water. May have small pools and channels, or patches of bare soil exposed during seasonal water drawdowns. Often associated with open water in streams, flowage lakes, glacial depressions or marine terraces. The area has a high degree of water table fluctuation and the substratum is usually predominantly mineral material.

Marsh

B Not dominated by emergent non woody plants. Peat filled or mineral wetland, usually having a water table at the surface. Surface flat or hummocky, usually supporting a dense cover of healthy non-stunted trees at times greater than 10 metres in height, or tall shrubs greater than 135 centimetres (herbs, grasses, ferns and brown mosses). Occasionally, *Sphagnum* mosses may dominate over brown mosses. Associated with stream courses, lake edges, subsurface drainage, glacial depressions, and bog margins. Peat mainly well decomposed forest peat, underlain at times by fen peat.

Swamp

A3 Wetlands in which 75 percent of the area is occupied by central expanses of permanent open water less than two metres in depth.
or
Wetlands where permanent open water is restricted to scattered small ponds occupying less than 75 percent of the area, or standing water is present only seasonally or not at all.

Shallow open water

Level 2
Key to Bog Forms

A) Surface raised or elevated around bordering mineral terrain

B) surface extensive, slightly or noticably raised

Domed Bog

B) surface noticably raised from margins, however flat to irregular with an abundance of surface water

Atlantic Plateau Bog

A) Surface not raised, but relatively level and concave or sloping.

C) adjacent to a water body

D) surface floating mat

Floating Bog

D) surface not floating

Shore Bog

C) Not adjacent to a water body

E) surface relatively flat and deposit appears to be topographically confined

F) bog confined to a basin, surface flat

Basin Bog

F) surface concave

Bowl Bog

F) bog confined in a flat depression

Flat Bog

E) surface relatively flat to undulating, however appreciably sloping, not always confined to topographic depressions

G) unpatterned surface

Slope Bog

G) patterned surface

H) concentric or eccentric ridges and pool formations

String Bog

H) patterns of ridges and pools appear random or disjunct, surface undulating with terrain often unconfined by topography

Blanket Bog

Key to Fen Forms

All fens found in Nova Scotia were either flat or sloping. No raised fens were recorded.

A) Surface not raised except for low hummocks and ridges forming distinct patterns

- B) sub-parallel to parallel ridges and furrows
  - C) broad pattern, extensive shallow peat deposit

    Atlantic Ribbed Fen
  - C) narrow ladderlike pattern, often near bog flanks

    Ladder Fen
- B) reticulate pattern of ridges and pools

  Net Fen

A) Surface not raised, without low hummock or ridges forming a distinct pattern

- D) adjacent to water bodies
  - E) peat or surface of deposit floating

    Floating Fen
  - E) peat or surface in contact with underlying mineral terrain
    - F) along main channel or along banks of a semi permanent stream

      Stream Fen
    - F) along shores of semi permanent or permanent standing bodies of water

      Shore Fen
- D) not adjacent to a water body
  - G) surface flat

    Horizontal Fen
  - G) occurring in open ended eroded stream channels

    Channel Fen

Key to Swamp Forms

A) Adjacent to permanent or semi-permanent bodies of water

- B) along the banks of continuously flowing streams

  Stream Swamp
- B) along the shores of standing bodies of water

  Shore Swamp

A) Not adjacent to permanent or semi-permanent bodies of water

- C) confined topographically defined basins
  - D) confined to a basin like depression in the mineral terrain

    Basin Swamp
  - D) located between peatland and mineral terrain

    Peat Margin or Lagg Swamp
- C) unconfined by topographic basins
  - E) surface relatively flat and regular
    - F) flat with uniform depth

      Flat Swamp
    - F) associated with poorly drained flood plains

      Flood Plain Swamp
  - E) occur in a stream or groundwater discharge area, irregular surface

    Spring Swamp

Level 3
Key to Peatland Surface Cover Types

The following keys to surface covertypes are abridged from Jeglum et al, (1974). Depending upon the peatlands being assessed, all covertypes will precede the peatland type. Eg. "low shrub" bog (LSB) or "low shrub" fen (LSF).

A) Trees providing less than 10% cover

- B) graminoids present, dominating any ericaceous shrubs
  - C) graminoids less than 25% of cover
    Open Sphagnum Bog/Fen (SB/F)
  - C) graminoids greater than 25% of cover, subdominant ericaceous shrubs or small trees
    Graminoid Bog/Fen (GB/GF)
- B) ericaceous shrubs predominanting over graminoids
  - D) shrubs less than 2 feet (50 cm) providing greater than 25% cover
    Low Shrub Bog/Fen (LSB/LSF)
  - D) shrubs greater than 2 feet (50cm) providing greater than 25% cover
    High Shrub Bog/Fen (HSB/HSF)

A) Trees over 8 feet (1.5m) in height providing greater than 10% of surface cover

- E) both graminoids and ericaceous shrubs making up less than 25% of understorey
  Treed Bog/Fen (TB/TF)
- E) either graminoids or ericaceous shrubs forming more than 25% of the understorey
  - F) graminoid dominant
    Graminoid Treed Bog/Fen (GTB/GTF)
  - F) shrub dominant
    Shrub Rich Treed Bog/Fen (STB/STF)

Open water on these deposits
Bog Pool (BP) or Fen Pool (FP)

Key to Swamp Cover Types

A) Tree or tall shrubs less than 8 feet (1.5m) high
Thicket Swamp (TS)

A) Trees or tall shrubs greater than 8 feet (1.5m) in height providing greater than 25% cover

- B) dominant tree cover 80% coniferous or deciduous
  - C) coniferous
    Conifer Swamp (CS)
  - C) deciduous
    Hardwood Swamp (HS)
- B) dominant tree cover less than 80% one or the other (mixed)
  Mixed Swamp (MS)