

## GLOSSARY

**aapamire**-- a patterned peatland characterized by well-developed strings and flarks, the strings being linear peat ridges separating flarks, which are linear pools or hollows transverse or perpendicular to the direction of water flow<sup>1, 2</sup>.

**alkalinity**-- the acid-neutralizing capacity of a water, found by titration of all bases, usually with a strong acid, expressed as milligrams (mg) calcium carbonate per liter (L).

**anion**-- an atom or group of atoms that carries a negative charge as a result of having gained one or more electrons.

**bog**-- a peat-accumulating wetland on the acidic end of the acid-base continuum in peatlands, typically dominated by a ground layer of *Sphagnum* mosses, a pH of 5 or less and low cation concentrations<sup>3</sup>.

**capitulum**-- the upper, "head-like" portion of a *Sphagnum* plant composed of a dense aggregation of branches.

**carpet**-- an area in which the ground vegetation occurs on loosely consolidated peat, extending only slightly above the water surface<sup>4</sup>.

**carr**-- a shrub-covered fen<sup>5, 6</sup>.

**cation**-- an atom or group of atoms that carries a positive charge as a result of having lost one or more electrons.

**diploid**-- having double the haploid number of chromosomes or double the number present in the gametes; the sporophytes in *Sphagnum* species are diploid.

**fascicles**-- a small bundle or cluster of leaves or branches as in *Sphagnum* mosses.

**fen**-- a peat-accumulating wetland on the neutral or basic end of the acid-base continuum in peatlands, typically dominated by a ground layer of brown mosses or sedges, and a pH of 5.5 or greater<sup>7</sup>.

**fibril**-- a thickening of a clear cell of a *Sphagnum* moss that projects into the cells and forms oblique to transverse bars across the cell.

**gametophyte**-- the gamete-producing part of a plant; in *Sphagnum* mosses this is the green part of the plant and is composed of the stem, leaves, branches and capitulum, which are haploid.

**geogenous**-- used to describe both vegetation communities and peats whose nutrients are derived from rainwater and well as water that has been in contact with the earth's surface or groundwater. Compare to ombrogenous. Roughly synonymous with minerotrophic.

**haploid**-- having half the diploid number of chromosomes or one of each pair of chromosomes that are normally characteristic of a species; the gametophytes of *Sphagnum* species are haploid.

**hardness**-- the sum of the cations calcium and magnesium expressed as milligrams (mg) calcium carbonate per liter (L). Thus hardness should theoretically never be more than alkalinity for a given water sample.

**hummock--** a small raised mound formed by the upward growth of sphagnum moss.

**hyaline cells--** the glassy, transparent, or translucent cells within *Sphagnum* mosses.

**lagg--** the margin surrounding a *Sphagnum*-dominated peatland located between the peatland itself and mineral soils, typically supporting swampy vegetation (sedges and/or shrubs). Parallel to the flanks of apamires.

**lawn--** an area in which the ground vegetation extends from well consolidated peat and forms wet flat areas with little relief<sup>8</sup>.

**limnogenous--** peatlands that are affected by inundation or permanent influence of water from rivers or lakes.

**minerotrophic--** used to describe both vegetation communities and peats that derive nutrients from rainwater and well as mineral water-- water that has been in contact with the earth's surface or groundwater. Compare to ombrotrophic. Roughly synonymous with geogenous.

**mire--** a generic term meaning for all natural and semi-natural peat communities with their peat substrate, commonly used in European literature<sup>9</sup>.

**moor--** in Britain, used to mean bleak, uncultivated upland, not necessarily peaty, often heather-covered. High-moor is used to distinguish moors poor in lime, meadow-moors those rich in lime. High moors are characterized by *Sphagnum* mosses<sup>10</sup>.

**moss--** synonymous with a *Sphagnum*-dominated peatland, typically used in England and historically english-speaking parts of Scotland<sup>11</sup>.

**muskeg--** bog forest of *Picea mariana* (black spruce) rooted in peat having a hummocky topography covered by mosses, chiefly *Sphagnum*, as well as a shrub layer dominated by *Ledum*<sup>12</sup>.

**ombrogenous--** used to describe both peatlands and vegetation communities that derive nutrients from rainwater alone. Compare with geogenous.

**ombrotrophic--** used to describe both vegetation communities and peats that derive nutrients from rainwater alone<sup>13</sup>. Compare with minerotrophic.

**pH--** pH is a measure of the hydrogen ion activity of a solution. It is expressed numerically as the negative common log of the hydrogen ion (H<sup>+</sup>) concentration and indicates the extent to which waters are acidic or basic on a scale from 1 to 14. Neutrality, the point at which H<sup>+</sup> and OH<sup>-</sup> ions are in balance, is 7.0 at 25 C, and somewhat over seven at lower temperatures. Each pH unit is 10 times larger or smaller than the previous one. Technically, pH measures the strength of hydrogen ion activity, but in dilute solutions, this is essentially the same as the concentration of hydrogen ions<sup>14</sup>.

**palsa--** a peatland having mounds containing a core of permafrost<sup>15</sup>.

**paludification--** expansion of peatland into surrounding uplands. The initiation process of peatland expansion whereby mesic sites become increasingly hydric and are encroached upon by a neighboring peatland<sup>16</sup>.

**raised bog--** a bog shaped like a dome or elevated above the surrounding land and therefore not accessible to adjacent geogenous waters.

**shore bogs--** *Sphagnum*-dominated peatlands formed along the shores of dystrophic lakes<sup>17</sup>.

**soligenous**-- peatlands whose water issues from slopes<sup>18</sup>.

**soluble reactive phosphorus**-- a form of phosphorus that is readily available to algae and aquatic plants.

**sporophyte**-- the spore-producing phase of a plant; in *Sphagnum* mosses this is the structure arising from the capitulum and composed of a foot, stalk, and capsule, which is diploid.

**terrestrialization**-- the initiation process of peatland development whereby small open basins of water become progressively infilled by organic material<sup>19</sup>.

**topogenous**-- peatlands whose water accumulates in topographic depressions<sup>20</sup>.

---

<sup>1</sup> Wright, H., B. Coffin & N. Aaseng, 1992. The Patterned Peatlands of Minnesota.

<sup>2</sup> Crum, H., 1992. A Focus on Peatlands and Peat Mosses. U of Michigan Press, Ann Arbor, Michigan.

<sup>3</sup> The definition of a bog is different for different investigators. This definition appears to be the most contemporary and follows recent literature, including Vitt (1990), Bridgham et al., (1996), and Wheeler and Proctor (2000).

Vitt, D.H., 1990. Growth and production dynamics of boreal mosses over climatic, chemical, and topographic gradients. Botanical J. of the Linnean Society 104:35-59.

Bridgham, S.D., J. Pastor, J.A. Janssens, C. Chapin and T.J. Malterer, 1996. Multiple limiting gradients in peatlands: a call for a new paradigm. Wetlands 16(1): 45-65.

Wheeler, B.D. and M.C.F. Proctor, 2000. Ecological gradients, subdivisions, and terminology of north-west European mires. J. of Ecology 88:187-203.

<sup>4</sup> Vitt, D.H., L.A. Halsey and S.C. Zoltai, 1994. The bog landforms of continental western Canada in relation to climate and permafrost patterns. Arctic & Alpine Research 26(1): 1-13.

<sup>5</sup> Wright et al., 1992.

<sup>6</sup> Crum (1992) has modified the original definition to include fens supporting deciduous trees.

<sup>7</sup> This definition reflects contemporary literature, including Vitt (1990), Bridgham et al., (1996), and Proctor and Wheeler (2000). In the 1950's fens were divided along a poor to rich gradient. Poor fens would not fit into this definition as they are acidic and *Sphagnum*-dominated.

<sup>8</sup> Vitt et al., 1994.

<sup>9</sup> Wheeler and Proctor (2000) indicate the term mire is synonymous with the term peatland.

<sup>10</sup> Wheeler and Proctor (2000).

<sup>11</sup> Wheeler and Proctor (2000).

<sup>12</sup> Crum (1992). This term is applied to large areas of northern Canada and Alaska south of the tundra covered by this vegetation type.

<sup>13</sup> In the past, this term was used to describe the hydrological trait of being rainwater-fed, but the term ombrogenous is currently favored to describe this hydrological condition, restricting the term ombrotrophic to describe the vegetation and/or peat (Wheeler and Proctor 2000; Bridgham 1996).

<sup>14</sup> Standard Methods for the Examination of Water and Wastewater, 1992. Ed: Greenberg, Arnold, L. Clescerl, and A. Eaton. American Public Health Association, American Water Works Association, Water Environment Federation. Washington, D.C.

<sup>15</sup> Gignac & Vitt, 1990.

<sup>16</sup> Nicholson and Vitt, 1990.

<sup>17</sup> Zoltai et al., 1988. Dystrophic lakes have excessive nutrients and have very high rates of primary production.

<sup>18</sup> Wheeler and Proctor, 2000.

<sup>19</sup> modified from Nicholson and Vitt, 1994.

<sup>20</sup> Wheeler and Proctor, 2000.