

**Table 3. Legend for environmental variables. Happy Valley.<sup>1</sup>** (Revised, L. Druckenmiller 2016)

<p><b><u>Landform (code)</u></b></p> <ol style="list-style-type: none"> <li>1 Hills (including kames and moraines)</li> <li>2 Talus slope</li> <li>3 Colluvial basin</li> <li>4 Glaciofluvial and other fluvial terraces</li> <li>5 Marine terrace</li> <li>6 Floodplains</li> <li>7 Drained lakes and flat lake margins</li> <li>8 Abandoned point bars and soughs</li> <li>9 Estuary</li> <li>10 Lake or pond</li> <li>11 Stream</li> <li>12 Sea bluff</li> <li>13 Lake bluff</li> <li>14 Stream bluff</li> <li>15 Sand dunes</li> <li>16 Beach</li> <li>17 Disturbed</li> <li>18 Drainage channel</li> </ol> <p><b><u>Surficial Geology-parent material (code)</u></b></p> <ol style="list-style-type: none"> <li>1 Glacial tills</li> <li>2 Glaciofluvial deposits</li> <li>3 Active alluvial sands</li> <li>4 Active alluvial gravels</li> <li>5 Stabilized alluvium (sands &amp; gravels)</li> <li>6 Undifferentiated hill slope colluvium</li> <li>7 Basin colluvium and organic deposits</li> <li>8 Drained lake or lacustrine deposits</li> <li>9 Lake or pond organic, sand, or silt</li> <li>10 Roads and gravel pads</li> <li>11 Fine grained stabilized alluvium</li> <li>12 Roads and gravel pads</li> <li>13 Fine grained stabilized alluvium</li> </ol> <p><b><u>Surficial Geomorphology (code)</u></b></p> <ol style="list-style-type: none"> <li>1 Frost scars</li> <li>2 Wetland hummocks</li> <li>3 Turf hummocks</li> <li>4 Gelifluction features</li> <li>5 Strangmoor or aligned hummocks</li> <li>6 High- or flat-centered polygons</li> <li>7 Mixed high- and low-centered polygons</li> <li>8 Sorted and non-sorted stripes</li> <li>9 Palsas</li> <li>10 Thermokarst pits</li> <li>11 Featureless or with less than 20 percent frost scars</li> </ol>	<p><b><u>Surficial Geomorphology (code)-continued</u></b></p> <ol style="list-style-type: none"> <li>12 Well-developed hillslope water tracks and small streams greater than 50 cm deep</li> <li>13 Poorly developed hillslope water tracks, less than 50 cm deep</li> <li>14 Gently rolling or irregular microrelief</li> <li>15 Stoney surface</li> <li>16 Lakes and ponds</li> <li>17 Disturbed</li> <li>18 Island in water track</li> <li>19 Well developed water track</li> </ol> <p><b><u>Microsites (code)</u></b></p> <ol style="list-style-type: none"> <li>1 Frost-scar element</li> <li>2 Inter-frost scar element</li> <li>3 Strang or hummock</li> <li>4 Flark, interstrang or interhummock area</li> <li>5 Polygon center</li> <li>6 Polygon trough</li> <li>7 Polygon rim</li> <li>8 Stripe element</li> <li>9 Inter-stripe element</li> <li>10 Point bar (raised element)</li> <li>11 Slough (wet element)</li> <li>12 Wet element of water track</li> <li>13 Moist, raised element of water track</li> <li>14 None</li> </ol> <p><b><u>Site Moisture-modified from Komárková 1983 (scalar)</u></b></p> <ol style="list-style-type: none"> <li>1.0 Extremely xeric - almost no moisture; no plant growth</li> <li>2.0 Very xeric - very little moisture; dry sand dunes</li> <li>3.0 Xeric - little moisture; stabilized sand dunes, dry ridge tops</li> <li>4.0 Subxeric - noticeable moisture; well-drained slopes, ridges</li> <li>5.0 Subxeric to mesic - very noticeable moisture; flat to gently sloping</li> <li>6.0 Mesic-moderate moisture; flat or shallow depressions</li> <li>7.0 Mesic to subhygric - considerable moisture; depressions</li> <li>8.0 Subhygric - very considerable moisture; saturated with less than 5 percent standing water less than 10 cm deep</li> </ol>
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**Table 3 (continued)**

<p><b><u>Site Moisture (scalar)-continued</u></b>            9.0 Hygic - much moisture; up to 100 percent of surface under water 10 to 50 cm deep; lake margins, shallow ponds, streams            10.0 Hydric - very much moisture; 100 percent of surface under water 50 to 150 cm deep; lakes, streams</p> <p><b><u>Soil Moisture (from Komárková 1983) (scalar)</u></b>            1.0 Very dry - very little moisture; soil does not stick together            2.0 Dry - little moisture; soil somewhat sticks together            3.0 Damp - noticeable moisture; soil sticks together but crumbles            4.0 Damp to moist - very noticeable moisture; soil clumps            5.0 Moist - moderate moisture; soil binds but can be broken apart            6.0 Moist to wet - considerable moisture; soil binds and sticks to fingers            7.0 Wet - very considerable moisture; drops of water can be squeezed out of soil            8.0 Very wet - much moisture can be squeezed out of soil            9.0 Saturated - very much moisture; water drips out of soil            10.0 Very saturated - extreme moisture; soil is more liquid than solid</p> <p><b><u>Glacial Geology (code)</u></b>            1 Till            2 Outwash            3 Bedrock            4 Alluvium</p> <p><b><u>Topographic Position (code)</u></b>            1 Hill crest or shoulder            2 Side slope            3 Footslope or toeslope            4 Flat            5 Drainage channel            6 Depression            7 Lake or pond</p>	<p><b><u>Soil Units (code)</u></b>            1 Pergelic Cryorthent, acid            2 Pergelic Cryopsamment            3 Pergelic Cryohemist, euic            4 Pergelic Cryosaprist, euic            5 Lithic Pergelic Cryosaprist            6 Pergelic Cryofibril, euic            7 Histic Pergelic Cryaquept, acid            8 Histic Pergelic Cryaquept, nonacid            9 Pergelic Cryaquept, acid            10 Pergelic Cryaquept, nonacid            11 Pergelic Cryochrept            12 Pergelic Cryumbrept            13 Ruptic-Lithic Cryumbrept            14 Pergelic Cryaquoll            15 Histic Pergelic Cryaquoll            16 Pergelic Cryoboroll            17 Pergelic Cryofluvent            18 Allic Pergelic Cryochrept            19 Pergelic Cryosphagnofibril            20 Ruptic Histic Pergelic Cryaquept nonacid            21 Ruptic Pergelic Cryaquept            22 Cryophasment</p> <p><b><u>Exposure (scalar)</u></b>            1.0 Protected from winds            2.0 Moderate exposure to winds            3.0 Exposed to winds            4.0 Very exposed to winds</p> <p><b><u>Estimated Snow Duration (scalar)</u></b>            1.0 Snow free all year            2.0 Snow free most of winter; some snow cover persists after storm but is blown free soon afterward            3.0 Snow free prior to melt out but with snow most of winter            4.0 Snow free immediately after melt out            5.0 Snow bank persists 1-2 weeks after melt out            6.0 Snow bank persists 3-4 weeks after melt out            7.0 Snow bank persists 4-8 weeks after melt out            8.0 Snow bank persists 8-12 weeks after melt out            9.0 Very short snow free period            10.0 Deep snow all year</p>
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**Table 3 (continued)**

<p><b><u>Disturbance-Animal and Human (scalar)</u></b></p> <p>0.0 No sign present</p> <p>1.0 Some sign present; no disturbance</p> <p>2.0 Minor disturbance or extensive sign</p> <p>3.0 Moderate disturbance; small dens or light grazing</p> <p>4.0 Major disturbance; multiple dens or noticeable trampling</p> <p>5.0 Very major disturbance; very extensive tunneling or large pit</p> <p><b><u>Stability (scalar)</u></b></p> <p>1.0 Stable</p> <p>2.0 Subject to occasional disturbance</p> <p>3.0 Subject to prolonged disturbance but slow disturbance such as solifluction</p> <p>4.0 Annually disturbed</p> <p>5.0 Disturbed more than once annually</p>	
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<sup>1</sup>Walker D. A., N. A. Auerbach, T. K. Nettleton, A. Gallant, and S. M. Murphy. 1997. Happy Valley permanent vegetation plots: site factors, physical and chemical soil properties, plant species cover, photographs, soil descriptions and ordination. Data Report, Department of Energy R4D Program, Institute of Arctic and Alpine Research, University of Colorado, Boulder, CO, USA.