Appendix 11-D

Brucejack Soil Mapping Units – Rationale for Ecological Function Ratings

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Appendix 11-D. Brucejack Soil Mapping Units – Rationale for Ecological Function Ratings

A four class soil eco-ratings system was developed to generally reflect the potential productive (sustainable biomass generating potential within a respective BEC subzone) value of the primary soil (SMU_1) within each soil polygon mapped (n = 1789) within the Project area. Wetland soils (O and G.p soils) were rated as Good (1.1) to reflect their special environmental value. Adjustments were made to the ratings based on specific TEM and/or terrain attributes (i.e., indicative of active (geo)processes or depth to bedrock that may impact land productivity potential; Table 11-D1).

The four class system includes the following descriptive ratings:

- Good **1** and **1.1**
- Medium **2**
- Poor **3**
- Non-classified **4**

Six of the 1,789 polygons have no ratings as no attribute data was available for these polygons or they occur outside of the mapped area.

Ratings were developed for each SMU based on two primary attributes (i) parent material and (ii) soil taxonomic class (order plus modifier, as appropriate).

Secondarily, ratings were further adjusted based on:

(i) the suspected presence of a shallow lithic content (polygon includes "x" in the surficial material modifier); and

(ii) TEM site series reflective of repeated avalanche disturbance (site series 51). These additional ratings adjustments were only applied to soils originally rated as Good (1) or Medium (2), and resulted in a downgrade of one class only, i.e., from class 1 to class 2, or class 2 to class 3. Class 3 and 4 soil ratings are unaffected by these secondary adjustments.

Primary Ratings

- Soil Parent Material Ratings:

  1 – M, L, LG, 1.1 O, G.p **2** – C, F **3** – G, D **4** – R, W, I, A

- Soil Taxonomic Ratings:

  1 – P, B, O, G.p **2** – G **3** – R **4** – n

Secondary Adjustment to Ratings

- Parent Material thickness – "x" in surficial material expression downgrade rating to 3 (poor).
- TEM Site Series – "51", polygon impacted by avalanche activity.

SMU_1 soils are rated according to the most restrictive rating.

Table 11-D1. Soil Map Unit Quality Ratings (Reclamation, Ecological Function)

Summary of all SMUs within the LSA	Soil Quality	
	Reclamation	In Situ/Ecological Function
An.R	poor	poor
C1.n	unsuitable	poor
C1.P	medium	medium
C1.R	poor	poor
C2.B	medium	medium
C2.n	unsuitable	poor
C2.P	medium	medium
C2.R	poor	poor
C3.B	medium	medium
C3.B.g	medium	medium
C3.B.so	good	good
C3.n	unsuitable	poor
C3.P	good	good
C3.R	poor	poor
C3.R.so	medium	medium
C4.B	good	good
C4.B.g	good	good
C4.n	unsuitable	poor
C4.R	poor	poor
C5.	medium	medium
C5.B	good	good
C5.B.g	good	good
C5.n	unsuitable	poor
C5.P	good	good
C5.P.g	good	good
C5.R	poor	poor
C6.B.g	poor	poor
C6.G	medium	medium
D1.n	unsuitable	poor
D1.R	poor	poor
D2.R	poor	poor
D3.R	poor	poor
D4.R	poor	poor
D5.R	poor	poor
D6.G	poor	poor
F '4.R	poor	poor
F '5.R	poor	poor
F '5.R.g	poor	poor
F 'n.n	unsuitable	poor
F2.R	poor	poor
F3.R	poor	poor
F4.R	medium	medium
F5.B	good	good
F5.B.g	good	good
F5.G	good	good
F5.P	good	good
F5.R	poor	poor
F5.R.g	medium	medium
F6.B.g	good	good
F6.G	medium	medium
F6.R.g	poor	poor
F7.G	medium	medium
FA2.n	unsuitable	poor
FA3.n	unsuitable	poor
FA3.R	poor	poor
FA5.n	unsuitable	poor
FA5.R.g	poor	poor
FAG2.n	unsuitable	poor
FAG5.n	unsuitable	poor
G2.B	good	good
G2.R	poor	poor
G3.n	unsuitable	poor
G3.R	poor	poor
G4.R	poor	poor
G5.B	good	good
G5.B.g	good	good
G5.P	good	good
G5.R	poor	poor
I	unsuitable	non-classified
In.n	unsuitable	non-classified
L1.n	good	poor
L2.R	good	poor

(continued)

Table 11-D1. Soil Map Unit Quality Ratings (Reclamation, Ecological Function; completed)

Summary of all SMUs within the LSA	Soil Quality	
	Reclamation	In Situ/Ecological Function
M.P	good	good
M1.B	medium	medium
M1.B.so	good	good
M1.P	medium	medium
M1.R	poor	poor
M2.B	good	good
M2.B.g	good	good
M2.n	unsuitable	poor
M2.R	poor	poor
M3.B	good	good
M3.B.g	good	good
M3.n	unsuitable	poor
M3.P	good	good
M3.R	poor	poor
M4.B	good	good
M4.B.g	good	good
M4.P	good	good
M4.R	poor	poor
M5.	good	good
M5.B	good	good
M5.B.g	good	good
M5.G	good	good
M5.n	unsuitable	poor
M5.P	good	good
M5.P.g	good	good
M5.R	medium	medium
M5.R.g	medium	medium
M6.G	good	good
M6.P.g	good	good
M7.G	good	good
M7.G.p	good	good
O5.G.p	good	good
O6.G.p	good	good
O7.O	good	good
PO	unsuitable	non-classified
R1.n	unsuitable	poor

Summary of all SMUs within the LSA	Soil Quality	
	Reclamation	In Situ/Ecological Function
R2.n	unsuitable	poor
R2.R	poor	poor
R3.n	unsuitable	poor
R3.R	poor	poor
w	unsuitable	non-classified
WT5.R	poor	poor