

## Appendix 2

### Soils

#### Soil Characteristics (from the USDA Soil Survey; Cumberland County, Maine)

There are several soils types that influence the vegetative characteristics, productivity, operability, and habitat available on the Rines forest. In some instances the forest types mirror a particular soil type, while elsewhere a particular forest type spans several different soils. For that reason, I will consider soils here separately. Please refer to the included soils map for a better understanding of the location and distribution of the soils that make up the Rines Forest. The list of soils found on the Rines Forest is as follows and is ranked in order of relative abundance:

- Suffield, SuD2
- Belgrade, BgB
- Hollis, HrB and HrC
- Hartland, HfC2
- Scantic, Sn
- Elmwood, EmB
- Swanton, Sz
- Windsor, WmB
- Melrose, MeC
- Hinkley
- Minor components (less than 1 acre in size):
  - Buxton, BuB
  - Deerfield, DeB

I will provide some further details on the most abundant types as described by Natural Resource Conservation Service. These details can be somewhat technical, but should shed some light on where to focus treatments, as well as seasonality and timing. They also shed light on composition and allow us to know if we are growing the right trees on a particular acre.

SuD2, Suffield silt loam, 15-25% slopes, eroded, approximately 76 acres

The Suffield series consists of very deep, well drained soils formed in lacustrine or marine sediments. They are mainly on gently sloping to very steep dissected plains. They typically have silt loam A and B horizons over a silty clay 2C horizon. Permeability is moderate in the solum and slow or very slow in the substratum. Slope ranges from 3 to 45 percent. Mean annual precipitation is 42 inches and the mean annual temperature is 51 degrees F. Suffield soils are gently sloping to very steep soils on the tops and sides of ridges in dissected marine and lacustrine plains.

Mostly areas are cleared and are used for growing grass and legume hay, pasture, and corn silage. Common forest trees are sugar maple, oak, elm, white pine, and hemlock.

BgB, Belgrade very fine sandy loam, 0-8% slopes, approximately 46 acres

The Belgrade series consists of very deep, moderately well drained soils formed in glaciolacustrine material. They are nearly level to moderately steep soils on terraces. Slope ranges from 0 to 25 percent. Saturated hydraulic conductivity is moderately high or high in the solum and moderately low to high in the substratum. Mean annual precipitation is about 44 inches, and the mean annual temperature is about 49 degrees F.

Common trees typically found are white, red oak, sugar maple, red maple, ash, black birch, yellow birch, beech, white pine, and hemlock.

BrB and HrC, Hollis fine sandy loam 3 – 15% slopes, approximately 43 acres

The Hollis series consists of shallow, well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from gneiss, schist, and granite. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. Slope ranges from 0 to 60 percent. Permeability is moderate or moderately rapid. Depth to hard bedrock ranges from 10 to 20 inches.

Mostly forested. Small areas with few rock outcrops are cleared of stones and used for cultivated crops, but most cleared areas are in hay or pasture. Scattered areas are used for community development. Common trees are red, white, black, and chestnut oak, hickory, white pine, hemlock, and gray and black birch.

HfC2, Hartland very fine sandy loam, 8 – 15% slopes, eroded, approximately 22 acres

The Hartland series consists of very deep, well drained soils on terraces and glacial lake plains. They formed in silty eolian or glaciolacustrine deposits. Saturated hydraulic conductivity is moderately high or high throughout the mineral soil. Slope ranges from 0 to 50 percent. Mean annual temperature is 48 degrees F, and the mean annual precipitation is 38 inches. The thickness of the solum ranges from 14 to 40 inches. Depth to bedrock is greater than 60 inches.

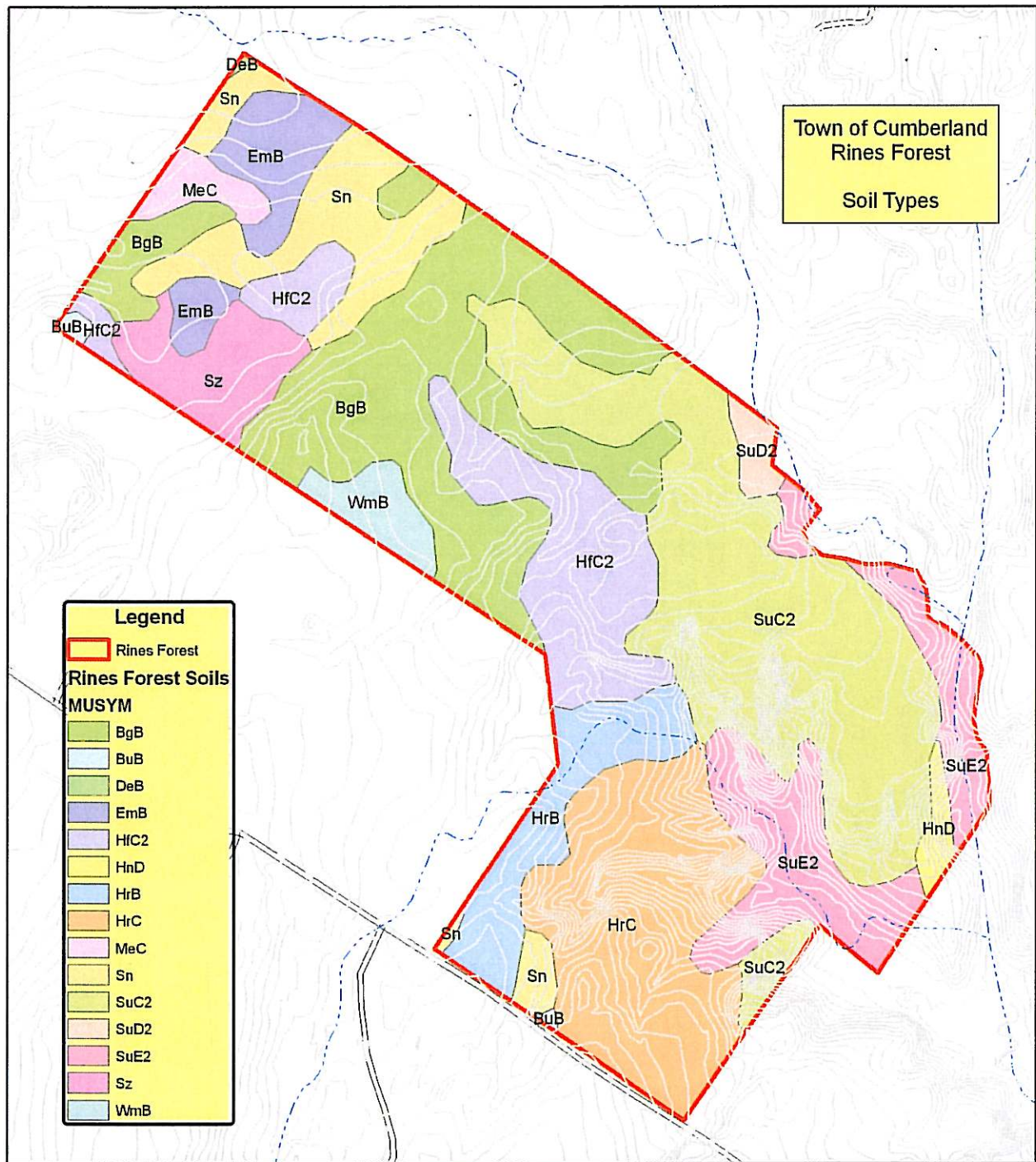
Most of the areas of less than 15 percent slope are used for hay, pasture, and corn. Some areas are used for potatoes, sweet corn, vegetables, tobacco, and other cash crops. Most areas of more than 15 percent slope are wooded. Common trees are white pine, white

oak, red oak, black oak, sugar maple, hickory, ash, black birch, yellow birch, and white birch, beech, and hemlock.

Sn, Scantic silt loam, 0- 8% slopes, approximately 17 acres

The Scantic series consists of very deep, poorly drained soils formed in glaciomarine or glaciolacustrine deposits on coastal lowlands and river valleys. Slope ranges from 0 to 8 percent. Permeability of the surface and subsurface horizons is moderate or moderately slow and it is slow or very slow in the subsoil and substratum. Mean annual temperature is about 44 degrees F, and mean annual precipitation is about 46 inches at the type location.

Mostly idle or woodland, some areas are used for growing hay and pasture. Common tree species include red maple, elm, gray birch, white ash, balsam fir, red and white spruce, tamarack, and some eastern white pine.



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