

*The Ecology of the Spruce-Fir
Forest Type of IRNP*

*Great Lakes Area Resources
Studies (1st of 5 parts)*

SOILS OF SPRUCE-FIR FOREST TYPE ON ISLE ROYALE, MICHIGAN

(1973 Supplement to Report dated 12/29/72)

by

Stephen G. Shetron

Associate Professor of Forestry Research

Ford Forestry Center

Michigan Technological University

11/27/73

6774
1973

Forward

Fifteen study plots were visited and the soils described thereon in July 1972 for the Spruce-Fir study under the direction of Dr. Robert Janke. Unfortunately adverse weather during this time limited visitation to all study sites. This supplemental report for 1973 contains soil descriptions for four study plots visited during July 1973. The format and discussion of each soil for each plot follows the 1972 report Appendix.

Chippewa Stand**Champion, No pan, red variant.****(well drained soil)**

Setting: Single 7% slopes; N 300° W aspect; convex shaped slopes; plot occupies a mid slope position between a rock outcrop and active stream channel on an abandoned lake terrace.

Location: Section 7, T65N, R34W, Keweenaw County, Michigan.

Elevation: 720 feet.

Profile:

O₁	4-2 cms.	Organic
O₂	2-0 cms.	Organic black (5YR 2/0); weak, fine, granular structure; friable; slightly acid.
A₂	0-3 ins.	Dark reddish gray (5YR 4/2) Fine sandy loam; weak, fine, subangular blocky structure; friable; medium acid.
B₂₁hir	3-8 ins.	Dark reddish brown (5YR 3/4) loam; weak, fine, subangular blocky structure; friable; medium acid.
B₂₂ir	8-18 ins.	Reddish brown (5YR 4/4) sandy loam; weak, fine, subangular blocky structure; friable, slightly acid.
B₃	18-33 ins.	Yellowish red (5YR 4/4) sand; single grain structure; loose, neutral.
C	33-60 ins.	Dark brown (7.5YR 4/4) silts, dark yellowish brown (10YR 3/4); coarse sand; reddish brown (2.5YR 4/4) silts; massive structure; neutral.

NOTE: No worms found on plot and the profile is very stoney and cobbly in the surface 18". Below 37" mottling was encountered indicating fluctuating water tables. Similar profiles have been encountered in Houghton County, Michigan.

Setting: Single 10% slopes; S70°E Aspect; convex shaped slopes; plot occupies mid slope position on an abandoned lake terrace.

Location: Section 4; T65N, R34W Keweenaw County, Michigan.

Elevation: 700 feet

Profile:

O ₁	2-1 cms	Organic
O ₂	1-0 cms	Black (5YR 2/0) organic matter, slightly acid.
A ₂	0-3 ins.	Reddish gray (5YR 4/2) fine sandy loam; weak, fine, granular structure; friable; medium acid.
B2l _h r	3-7 ins.	Dark reddish brown (5YR 3/4) sandy loam; weak, fine subangular blocky structure; friable; medium acid.
B22l _r	7-16 ins.	Reddish brown (5YR 4/4) sandy loam; weak, fine, subangular blocky structure; friable; slightly acid.
B3x	16-23 ins.	Dark reddish brown (5YR 3/4) loamy sand; moderate, medium, platy structure; firm; medium acid.
R	23-	Bed rock (sandstone)

NOTE: No worms and depth to bedrock varies from several inches to 30" or more. The northern portion of the plot however, has a deeper mantel of materials for the soil to develop in. The Uby soils were found. They differ from the Onota in having a fragipan 2" thick @ 16" and silty clay loam @ 18" grading to clay loam at 36". The finer materials are alkaline with clay skins on the particle faces between 20-36". The clay loam materials are typical of till materials of the Feldman II plot.

Moskey II

Waiska over bedrock

(well drained soil)

Setting: Single 6% slopes; south aspect; convex shaped; plot occupies a mid slope position on an abandoned lake terrace.

Location: Section 27, T66N, R34W, Keweenaw County, Michigan.

Elevation: 650 feet.

Profile:

O ₁	6-4 cms	Organic
O ₂	4-0 cms	Dark reddish brown (5YR 2/2) organic matter; weak, medium granular structure; very friable; strongly acid.
A ₁	0-1 ins	Dark gray (5YR 4/1) loam; weak, medium granular structure; very friable; strongly acid.
A ₂	1-2 ins	Dark reddish gray (5YR 4/2) loam; weak, medium granular structure; very friable; medium acid.
B21hir	2-9 ins	Dark reddish brown (5YR 3/3) gravelly fine sandy loam; weak, fine, subangular blocky to single grain structure; friable to loose; slightly acid.
B22ir	9-22 ins	Dark reddish brown (5YR 3/4) gravelly fine, sandy, loam; single grain structures loose; neutral.
C	22-38 ins	Dark brown (7.5YR 3/2) gravelly coarse sand; single grain structure; loose, neutral to alkaline.
R	38 ins	Bedrock.

NOTE: Few worms found on plot, also clay skins noted on pebble faces along with iron and organic coatings. Profile is browner than Smithwick south (burned) plot. Gravels are pea sized and occupy 60% or more of the soil volume.

Conglomerate Point Miscellaneous land type (well drained)

Setting: Single 10% slopes; south east aspect; convex shaped; plot occupies an upper slope position on an abandoned lake terrace.

Location: Section 26, T66N, R34W Keweenaw County.

Elevation: 740 feet

Profile:

O ₁	4-2 cms	Dark reddish brown (5YR 3/4) organic matter
O ₂	2-0 cms	Black (5YR 2/1) organic matter; weak, medium, granular structure; very friable; medium acid.
A ₁	0-1 ins	Dark reddish gray (5YR 4/2) silt loam; weak, medium, granular structure; friable; strongly acid.
R	1 ins	conglomerate bedrock.

NOTE: Silt loam varies from 1-2" on plot.