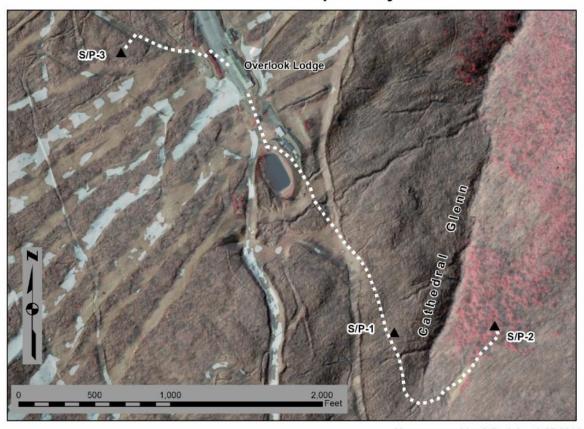


CERM Conference 2018 - Belleayre "Mountain High" Field Trip Soil/Plant Relationships Study Sites



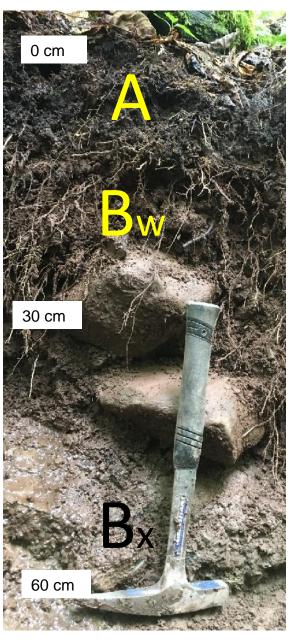
Map prepared by S.Parisio 9.25.2018

Overview: Despite a relative uniformity of geologic parent materials (thin predominantly reddish, medium-textured glacial till derived from Devonian conglomerate, sandstone and shale), Catskill soils show considerable variability with respect to soil genesis/morphology and soil chemistry. These differences are reflected in contrasting plant communities which can be present within a relatively small segment of the landscape. This field trip will include study sites exemplifying three distinct soil/plant associations within a radius of 2000 feet around the conference venue (Belleayre Mountain, Overlook Lodge).

This map above shows the study locations (black triangles) and the walking route (white dashed lines) for the soil/plant relationships component of the "Mountain High" field trip. The base map is a hillshade visualization of a 2009, LiDAR-derived, 1 meter digital elevation model (DEM) with a color infrared orthoimage (50% transparent) draped over the hillshade layer. Study site SP-1 exemplifies a typical, moderately acidic, Catskill soil (*Typic Fragiudept*, Lewbeach Series) developed under northern hardwoods (sugar maple, beech and yellow birch). Study site SP-2 shows the extremely acid, low nutrient (oligotrophic) end of the soil/plant spectrum with a *Spodosol* developed under a cover of hemlock. Study site SP-3 shows the circumneutral, nutrient-rich (eutrophic) end of the soil/plant spectrum with a *Eutrudept* developed under a forest cover dominated by white ash and sugar maple.

Topics discussed at each site and along the route will include soil classification, soil chemistry, soil/plant associations, soil fauna and soil genesis and soil humus forms.





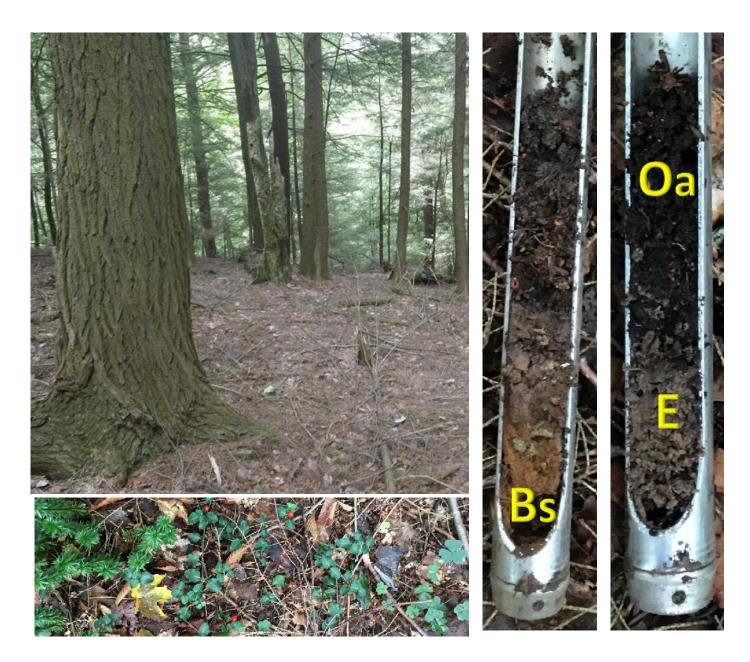
Study Site SP-1

This soil profile is exposed in the side of a depression caused by a recent tree blow-down at 42.12549, -74.50188, elevation 2,570 ft., along the north side of the walking route from Overlook Lodge to upper end of the Cathedral Glenn hemlock stand.

The soil is a deep, well-drained, *Typic Fragiudept* of the Lewbeach Series. The profile shows a moder soil humus layer (Oe + Oi + Oa), an A horizon, a cambic (Bw) horizon and a fragipan (Bx) starting at a depth of about 40 cm..

Vegetation is typical northern hardwoods (maples, beech and yellow birch with minor amounts of white ash, black cherry and basswood).

This site exemplifies the most typical and widespread soil/plant association in the Catskill High Peaks Ecoregion.



<u>Study Site SP-2</u> – This site in the Cathedral Glenn Hemlock grove at 42.12587, -74.49978, elevation 2,460 ft., was chosen to exemplify a special soil/plant association characterized by extremely acid soils and vegetation adapted to such soils. Soil exposed by borings shows spodosol profile morphology including a thick black Oa horizon (Mor humus form), underlain by a prominent albic (E) horizon. The top of a spodic (Bs) horizon is visible in the soil sampling tube on the left. Vegetation under the hemlocks is sparse. An understory is absent and ground cover is absent or of low species diversity. (*Lycopodium lucidulum, Mitchella repens* and *Oxalis montana* are the typical ground cover species when present.)





Site SP-3 - This site, located near the base of a ski trail at 42.13063, -74.50849, elevation 2,600, corresponds to transect #83 first described by M. Kudish circa 1970 as part of his doctoral dissertation. The site exemplifies a special soil/plant association with white ash and sugar maple co-dominant in the canopy layer and a rich herbaceous flora including calciphile plant species such as Maidenhair Fern (Adiantum pedatum). The soil exhibits a circumneutral pH and Eutrudept soil morphology including a Mull soil humus form. Earthworms and other soil fauna are abundant. With the exception of a thin Oi horizon, the O horizon is absent and soil organic matter is thoroughly incorporated into the mineral soil (A horizon).