Maps Depicting "Problem" Soil Areas
(Soils Requiring Special Evaluation for Hydric Conditions)

Description

These maps show the areas where certain "problem" soils are likely to be found in New England. See Indicator XIII in *Field Indicators for Identifying Hydric Soils in New England, Version 3* for a description of "problem" soils. **These maps are only predictive based on general associations between certain soil series and certain problem morphologies; see the "Metadata" section below for an explanation on how they were generated.**

As noted in the description of Indicator XIII, specific map location of disturbed soils (soils altered by human activity) is impractical, since they occur throughout the region. Maps were generated to identify the general location of the other three main categories of "problem" soils described in *Field Indicators Version 3*. These are (1) Folists and soils with folistic epipedons; (2) Soils formed in dark parent materials; and (3) Soils formed in red parent materials. See *Field Indicators Version 3* for more information on these soils. Note that *Field Indicators Version 3* includes a specific indicator for dark mineral soils (Indicator VIII), although this indicator does not solve the identification problem in all areas.

An additional map of areas with high-clay-content lacustrine soils was also generated. These soils are specific to the area of Glacial Lake Vermont whose water once covered the Champlain valley of Vermont and New York. The soils formed mainly in marine sediments that have a clay content ranging from 60 to 90 percent. The soils typically exhibit low chroma colors, indicative of hydric soils, in locations where agricultural operations occur routinely throughout the growing season. The parent material commonly has colors of chroma 2 or less making it difficult to see redox depletions or determine if a horizon has a depleted matrix. At the same time, these soils commonly have colors with a value of 3, which is not included in the definition of "depleted matrix" or "gleyed matrix." The high clay content results in shrinking and swelling of the soil that creates strong structure with deep cracks along prism faces persisting throughout the year. Deep cracking allows rapid transport of water and raises the question: Is it possible for saturation to occur? In addition, presence of these large voids or conduits within the soil makes it difficult to measure saturation with standard methodology such as monitoring wells. Finally there is a question regarding the geologic history. Did the existing soil colors develop in an earlier period when Glacial Lake Vermont was at a higher stage? Are they relic features? Some clay soils may qualify as hydric soils using the new Dark Mineral hydric soil indicator.

Metadata

A list of soil series associated with problem morphology for evaluating hydric conditions was developed by the New England Hydric Soils Technical Committee (NEHSTC). These soil series were queried in the State Soil Geographic (STATSGO) Data Base, Version 1, for the New England states. STATSGO is a complex soils database in which each map unit is comprised of up to 21 components. The top three components were used for this query in order to represent the majority composition of each map unit in a graphic representation which was reviewed and edited.

ArcGIS 8.2 was used to generate ESRI shapefiles and jpeg files for the following themes:

- Soils derived from red lithology
- Soils derived from dark lithology
- High clay content lacustrine soils
- Folists and folistic epipedons

The soils series used to generate each map are listed below. This list was developed based on the collective best professional judgment of the New England Hydric Soils Technical Committee.

I. Soils derived from red lithology
Cheshire
Ludlow
Menlo
Holyoke
Yalesville
Wethersfield
Wilbraham

II. Soils derived from dark lithology
(Narragansett Basin)
Mansfield
Newport
Pittstown
Stissing
(Phyllitic Lithology)
Bernardston
Brayton
Buckland
Cabot
Dummerston
Dutchess
Fullam
Hubbarton
Kearsarge
Lanesboro
Macomber
Mansfield
Nassau
Peacham (exclude areas mapped in MA)
Pennichuck
Pittstown
Shelburne (exclude areas mapped in MA)
Stissing
Taconic

III. High clay content lacustrine soils
Covington
Kingsbury
Livingston
Panton
Vergennes

IV. Folists and Folistic epipedons
Mahoosuc
Ricker

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