

Soil Parent Materials of Rhode Island



Bedrock controlled landscape



Woodbridge fine sandy loam - Moderately well drained soil formed in subglacial lodgement till.



Narragansett silt loam - Well drained soil formed in loess over ablation till.



Enfield silt loam - Well-drained soil formed in loess overlying sandy and gravelly glaciofluvial parent materials.



Hinkley loamy sand - Excessively drained well stratified sand and gravel formed in glaciofluvial deposits.



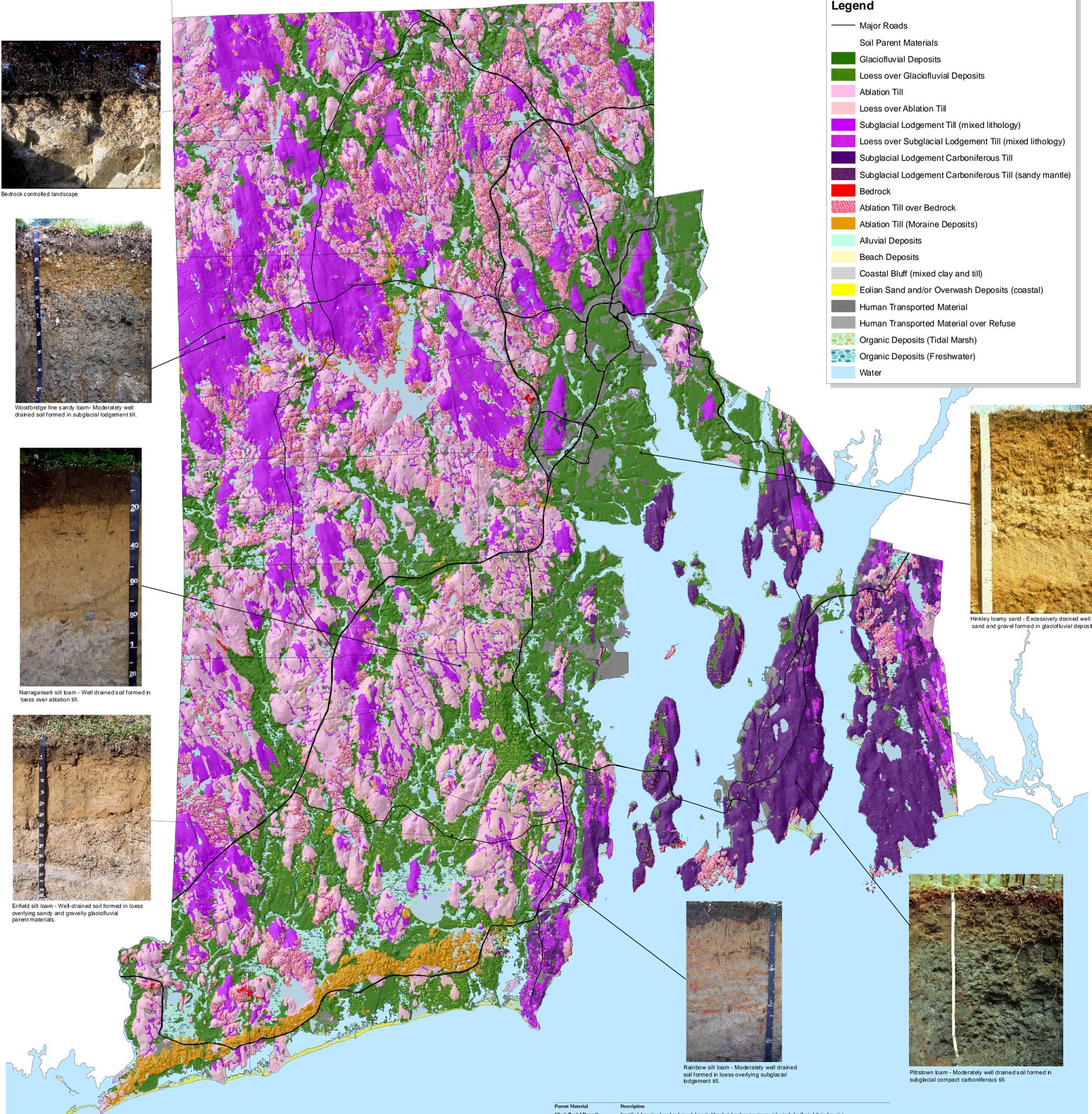
Rainbow silt loam - Moderately well drained soil formed in loess overlying subglacial lodgement till.



Pittstown loam - Moderately well drained soil formed in subglacial compact carboniferous till.

Legend

- Major Roads
- Soil Parent Materials
- Glaciofluvial Deposits
- Loess over Glaciofluvial Deposits
- Ablation Till
- Loess over Ablation Till
- Subglacial Lodgement Till (mixed lithology)
- Loess over Subglacial Lodgement Till (mixed lithology)
- Subglacial Lodgement Carboniferous Till
- Subglacial Lodgement Carboniferous Till (sandy mantle)
- Bedrock
- Ablation Till over Bedrock
- Ablation Till (Moraine Deposits)
- Alluvial Deposits
- Beach Deposits
- Coastal Bluff (mixed clay and till)
- Eolian Sand and/or Overwash Deposits (coastal)
- Human Transported Material
- Human Transported Material over Refuse
- Organic Deposits (Tidal Marsh)
- Organic Deposits (Freshwater)
- Water



GEOLOGY

Two major geologic formations dominate the bedrock geology of Rhode Island: the Narragansett Structural Basin, and the granitic upland of the north and western part of the state. The Narragansett Basin consists mainly of carboniferous materials such as dark colored metasediments, phyllite, and shale. The granitic upland of Rhode Island consists of acidic crystalline rocks including granite, gneiss, granodiorite, and schist. The gray area on the map to the left shows the general area covered by the Narragansett Basin.

PARENT MATERIALS

Glacial tills and glaciofluvial deposits are the two most common parent material types in Rhode Island. Till can be either subglacial lodgement till or supraglacial melt-out till. Lodgement till is very dense and often impedes water movement through the soil. Melt-out, flow, or ablation till is generally more friable and allows water to move through the soil. Glaciofluvial deposits consist of stratified sands and gravels and allow for rapid water movement through the soil. Many soils in Rhode Island have a loess or eolian mantle that consists of 6 inches to over 4 feet of silt material that overlies both glacial till and glaciofluvial deposits. This loess mantle was formed shortly after the glaciers retreated as wind picked up and redeposited the fine sands and silts over the landscape. Other soil parent materials in RI consist of alluvium, organic material, overwash and beach deposits, and human transported material.

Visit: <http://www.nrcs.usda.gov/technical/soils.html> for more information.



Parent Material	Description
Glaciofluvial Deposits	Stratified deposits of sand and gravel deposited by glacial melt-water streams (also includes fluvio-deltaic deposits). These soils formed in silt loam textured loess overlying glaciofluvial deposits.
Loess over Glaciofluvial	Unsorted, non-stratified material deposited by glacial ice and consisting of a heterogeneous mixture of clay to boulder size particles. Ablation till is very variable, but tends to be loose and dominantly sandy and may have lenses of firm loamy material.
Ablation Till	These soils formed in silt loam textured loess overlying sandy, ablation till.
Loess over Ablation Till	Unsorted, non-stratified material deposited by glacial ice and consisting of a heterogeneous mixture of clay to boulder size particles. Lodgement till is usually found on drumlins and till ridges. Lodgement till tends to have a higher percentage of silt and clay than ablation till and is usually very dense.
Subglacial Lodgement Till (mixed lithology)	These soils formed in silt-loam textured loess overlying lodgement (dense) till deposits (mixed lithology).
Loess over Subglacial Lodgement Till	Unsorted, non-stratified material deposited by glacial ice and consisting of a heterogeneous mixture of clay to boulder size particles. Lodgement till is usually found on drumlins and till uplands. Lodgement till tends to have a higher percentage of silt and clay than ablation till and is usually very dense. This group is for areas of lodgement till derived from dark colored mineralogy associated with the Narragansett Basin Bedrock (Carboniferous in age).
Subglacial Lodgement Carboniferous Till	Same as above but these map units have a sandy to loamy sand mantle (Popeoanock and Birchwood Soils). NOTE: This coding does not include those areas where the sandy mantle is very thick and was mapped as glacial fluvial soils (Windsor and Agawam) these areas will show up as fluvial soils even though they are underlain by carboniferous till or bedrock.
Subglacial Lodgement Carboniferous Till (sandy mantle)	Areas almost entirely consisting of bedrock and shallow to bedrock soils. Refer to the bedrock geology map of RI for information about the type of bedrock in the area.
Bedrock	These map units consist of bedrock-controlled landforms. The soils formed in ablation till (described above) and have ledge or bedrock typically within 6 feet of the surface. These soils are mapped in a complex of shallow, moderately deep, and very deep soils.
Ablation Till over Bedrock	Areas of Ablation Till mapped on moraines such as the Charles Town End Moraine.
Ablation Till (Moraine Deposits)	Material deposited in modern-day floodplains.
Alluvial Deposits	Used only along the shoreline escarpment of Block Island. These deposits consist of mixed textured coastal plain clays and till material.
Coastal Bluff (mixed clay and till)	Dune and back barrier Holocene deposits adjacent to beaches along the south shore and shoreline areas.
Eolian Sand and/or Overwash Deposits	Commonly referred to as fill, human altered/transported material includes a variety of soil and geologic material deposited by human activity.
Human Transported Material	Active and inactive refuse (landfills, dumps, etc.) areas.
Human Transported Material over Refuse	Includes both fresh and tidal organic soils formed in more than 16 inches of organic material. For tidal organic areas, Matumuck soils are included even though the organic thickness is less than 16 inches.
Organic Deposits	

1:100,000



Produced March, 2009 by RI USDA NRCS
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