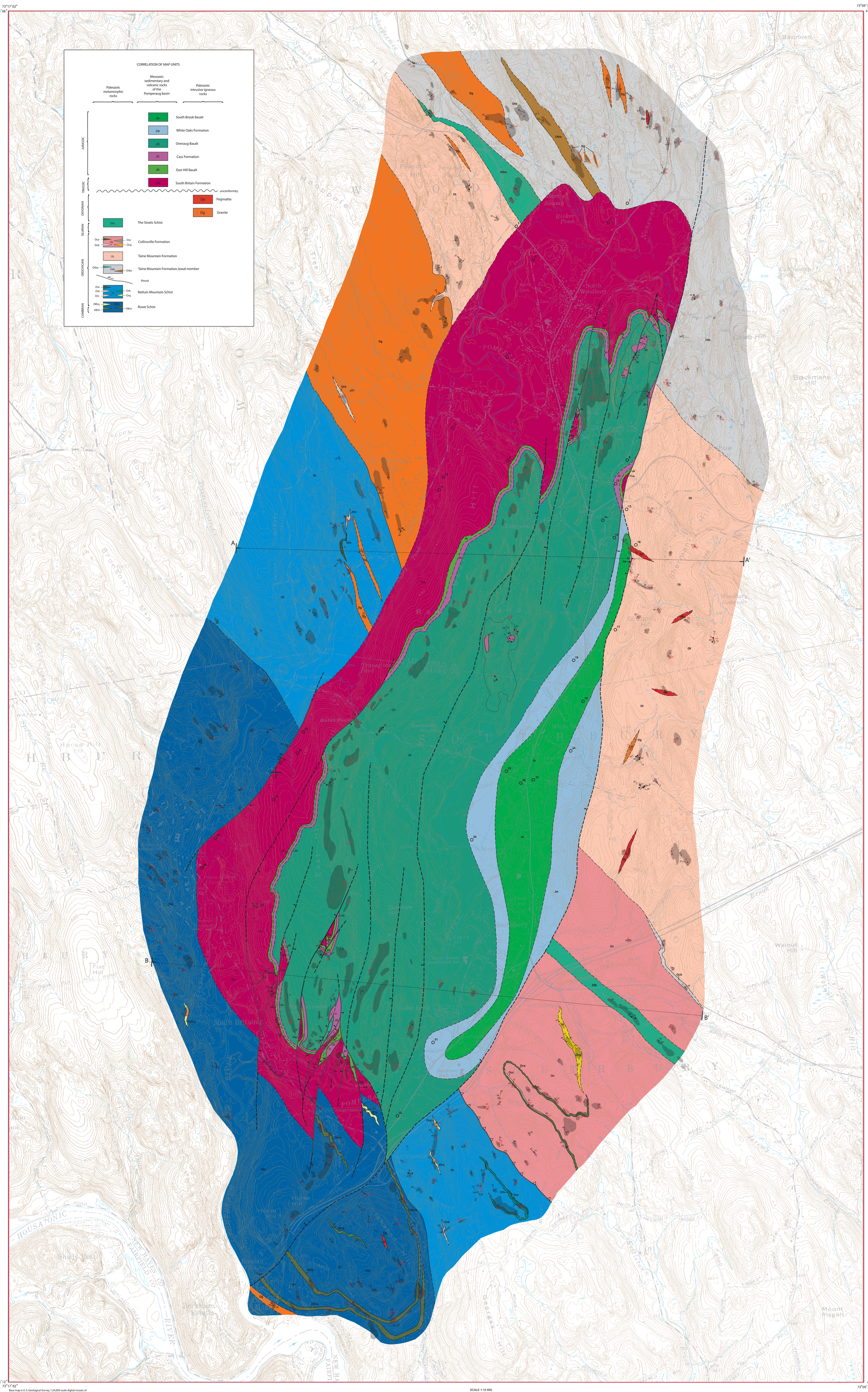
Prepared in cooperation with the
POMPERAUG RIVER WATERSHED COALITION
Southbury, CT



Bedrock Map of the Early Mesozoic Pomperaug Basin and Surrounding Basement Rocks, Litchfield and New Haven Counties, CT

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DESCRIPTION OF MAP UNITS

(minerals in pre-Mesozoic rocks listed in ascending order of abundance)

(For more complete discussion and description of units, see Burton and others, 2005)

Js — South Brook Basalt. Dark gray to black, amygdaloidal basalt exposed only in South Brook in Woodbury. Primary texture is intergranular, with abundant microlites of plagioclase. Strongly altered due to proximity to eastern border fault and associated mineralization, which has produced secondary mineralization in amygdules and groundmass of secondary chlorite and calcite. Locally at least 35 m (well SB-33)

Jw — White Oaks Formation. Exposed only in South Brook, as a conglomerate immediately underlying and in contact with South Brook Basalt (Js). Contains subrounded, equant to elongate clasts up to 2 cm length of quartzite, siltstone, shale, marble, and garnet-mica schist, in finer-grained matrix consisting mostly of subangular to subrounded grains of quartz, feldspar, and garnet in a secondary calcite cement. Southern extent defined by well records and quarried blocks in Southbury. Locally at least 31 m (well SB-33)

Jo — Orenaug Basalt. Dark gray, massive basalt that is well exposed and dominant ridge-former in Pomperaug basin. Locally contains well-developed columnar jointing. Texture is intergranular and consists of plagioclase laths up to 2 mm long, interstitial clinopyroxene, and opaques. Quarry exposures indicate at least 2 flow units; total thickness of basalt is about 80 m

Jc — Cass Formation. Fine-grained, thin-bedded, gray to green sandstone and siltstone, consisting mostly of subangular grains of quartz and minor plagioclase and detrital mica in a matrix of calcite and lesser hematite. Total thickness about 35-40 m. In Woodbury and Southbury quarries exposed upper section reveals a 3 m-thick, fine-grained, well-sorted sandstone of aeolian origin, overlain by a 1 m thick cross-bedded white sandstone at contact with overlying basalt. In Cass Brook, formation contains a thin (<1m) interval of buff, fossiliferous limestone and black slate. Pebbly arkose and fanglomerate near top of section formerly exposed in Southbury quarry

Je — East Hill Basalt. Green to gray weathering, highly vesicular basalt. Poorly exposed, with characteristic spheroidal weathering. Commonly altered, with calcite-filled vesicles and chloritized matrix. Total thickness about 7 m

Trs — South Britain Formation. Light to dark red arkose, commonly medium-grained, but with local pebbly horizons and fine-grained zones. Pebbles consist mostly of white quartz and lesser plagioclase and microcline, but locally include clasts of garnet-mica schist and marble. Well exposed in Pomperaug River and on the west flank of Rattlesnake Hill in South Britain, and in Cass Brook. Total thickness estimated about 250 m

Dp — Pegmatite. White, coarse-grained, quartz-plagioclase-microcline + biotite + muscovite pegmatite. Occurs as mappable lenses intruded along S2 foliation in other rocks

Dg — Granite. White to tan, medium-grained, massive to moderately well-foliated, biotite-muscovite-microcline-plagioclase-quartz granite. Intruded synchronously with development of Acadian S2 foliation

DSt — The Straits Schist. Coarse-grained, silvery to lustrous, garnet-biotite-muscovite-plagioclase-quartz + staurolite schist. Contains abundant lenses of medium- to coarse-grained to white quartz-plagioclase leucosome several cm in length and parallel to dominant (S2) foliation

Oca, Ocb, Oc, Occ, Ocg — Collinsville Formation. Gray to locally rusty, medium- fine to medium-grained biotite-muscovite-quartz-plagioclase + garnet schist and granofels. Locally contains pin-stripe laminae of fine-grained quartz-plagioclase granofels. Contains mappable layers of dark green to black, medium-fine-grained hornblende-plagioclase amphibolite (Oca), white, fine-grained diopside-plagioclase-plagioclase-quartz calc-silicate (Occ), gray biotite gneiss (Ocb), and medium-grained, muscovite-quartz-plagioclase granofels (Ocg)

Ot — Taine Mountain Formation. Gray to rusty, blocky to massive-weathering, medium-fine- to fine-grained muscovite-biotite-plagioclase-quartz + garnet schist and granofels. Granofels typically in the form of several-mm to one-cm thick, tightly folded white to tan quartz-rich laminae

Otba, Otb, Otbs — Taine Mountain Formation, basal member. Gray, medium-fine to medium-grained, well-foliated to laminated biotite-quartz-plagioclase + garnet gneiss, locally interlayered at outcrop scale with medium- to coarse-grained garnet-biotite-muscovite schist. Larger, mappable layers of schist (Otbs) and amphibolite (Otba) also shown

Ora, Orb, Orc, Or, Ork, Orq — Ratlum Mountain Schist. Gray to silvery-lustrous, medium-fine to medium-grained, biotite-muscovite-plagioclase-quartz + garnet schist. Commonly laminated with one to several cm-thick layers of quartzite and plagioclase-quartz granofels. Contains thin mappable bodies of fine-grained, gray to black amphibolite (Ora), tan quartzite (Orq), gray biotite gneiss (Orb), white calc-silicate (Orc), and coarse-grained, gray to lustrous kyanite schist (Ork)

OЄrq, OЄrk, OЄr, OЄra — Rowe Schist. Gray, medium-fine-grained garnet-biotite-muscovite ± chlorite schist. Contains thin mappable bodies of amphibolite (OЄra), kyanite schist (OЄrk), and quartzite (OЄrq). Less quartz-rich and more chloritic than Ratlum Mountain Formation (Or)

EXPLANATION OF MAP SYMBOLS

outcrop - areas of exposed rock examined in this study

O & G trap rock quarry

17 — Well used in map compilation; number refers to table

Common corner of four USGS 7.5-minute topographic quadrangles: Woodbury (NE), Southbury (SE), Newtown (SW), and Roxbury (NW)

Planar and linear features

(Number indicates dip and plunge of planar and linear feature , respectively. Where planar and/ or linear features are combined, measurement is at point of intersection.)

contact, dashed where inferred

34 — Bedding

10 — Plane perpendicular to columnar jointing in basalt (approximate flow attitude)

64 — Dike or vein

83 — Joint, inclined

Joint vertical

78 — Mineral joint, inclined

Mineral joint,vertical

68 — Minor fault, inclined -- "U", "D" , arrows indicate movement sense where known

Minor fault, vertical

53 — S1 schistosity or foliation,inclined

S1 schistosity or foliation, vertical

78 — S1 gneissosity parallel to compositional layering, inclined

S1 gneissosity parallel to compositional layering, vertical

40 — S2 schistosity, inclined

S2 schistosity, vertical

38 — S3 schistosity or crenulation cleavage, inclined

S3 schistosity or crenulation cleavage

F1 axial surface, inclined

F1 axial surface, vertical

27 — F2 axial surface, inclined

F2 axial surface, vertical

62 — F3 or F4 axial surface or crenulation, inclined

F3 or F4 axial surface or crenulation, vertical

Normal fault -- ball and bar on downthrown side; arrows indicate lateral movement sense where known -dashed where inferred

Thrust fault -- teeth on overriding plate

Linear features

10 — S1/S2 intersection lineation

17 — F2/S2 mineral elongation or streaking

35 — F1 fold axis

46 — F2 fold axis, inclined

F2 fold axis, horizontal

35 — F3 or F4 fold axis

25 — Slickenlines

SELECTED WELL RECORDS USED IN MAP COMPILATION

Unless indicated, records were compiled by Claudia Tamayo (USGS, Connecticut Water Science Center) from drillers' domestic water-well logs in State of Connecticut database. Drillers' original lithologic terms are given; when in quotes, "granite" is interpreted here as basalt (trap rock). Depths given in feet starting from top of competent bedrock to bottom of hole.

1. 90-305, gneiss
2. 65-385, red rock and brownstone
3. 42-165, dark gray granite
4. 159-240, red sandstone
5. 180-275, red rock
6. 12-325, red rock
7. 60-140, red sandstone
8. 50-305, red sandstone
9. 10-160, traprock
10. 95-235, red sandstone; 235-260, gray granite
11. 60-190, rotten crumbly sandstone; 190-520, granite
12. 27-32, sandstone; 32-70, "granite"
13. 44-305, mica schist
14. 84-203, traprock
15. USGS well CT-WY-87: 36-75, Orenaug Basalt (Jo)
16. USGS well CT-WY-86: 17-102, pegmatite and schist
17. 48-245, mica
18. 30-205, shale
19. 80-180, red rock; 180-220, green "granite"; 220-260, white quartz; 260-270, red rock; 270-305, gray "granite"
20. 35-175, red ledge
21. 50-185, red rock
22. 7-65, brown mica; 65-305, gray mica
23. 20-50, red rock; 50-100, mica; 100-130, red rock
24. 60-200, red sandstone
25. 60-205, traprock and red shale
26. 57-90, traprock; 90-230, gray and red shale; 230-630, traprock; 630-823, red and gray shale
27. 70-88, brown sandstone; 88-150, gray shale
28. boring in red-brown sandstone (Starn and others, 2000)
29. boring in red-brown sandstone (Starn and others, 2000)
30. approximate location of oil well reported by Hovey (1890), which went through "red and black shales, red sandstones and conglomerates, and two trap sheets." Total thickness of Mesozoic section 1,235 ft
31. 25-45, shale; 45-300, "granite"
32. 27-450, traprock
33. USGS well SB-33: 50-167, basalt; 167-270, red and gray siltstone and fine-grained sandstone; 270-410, basalt

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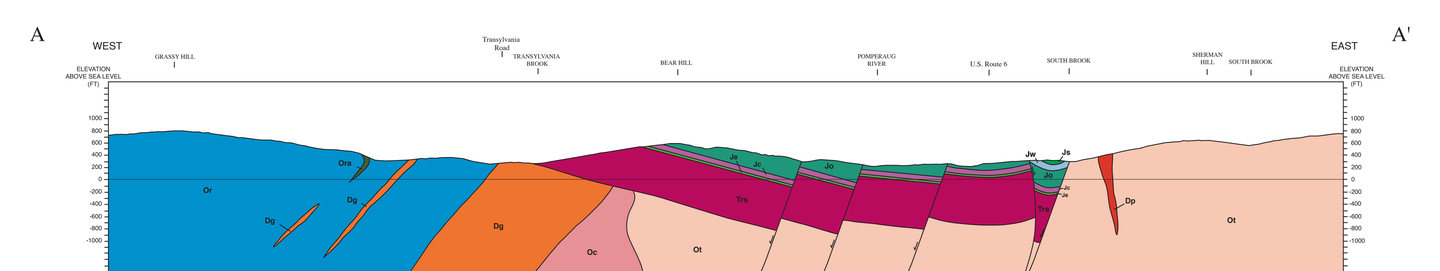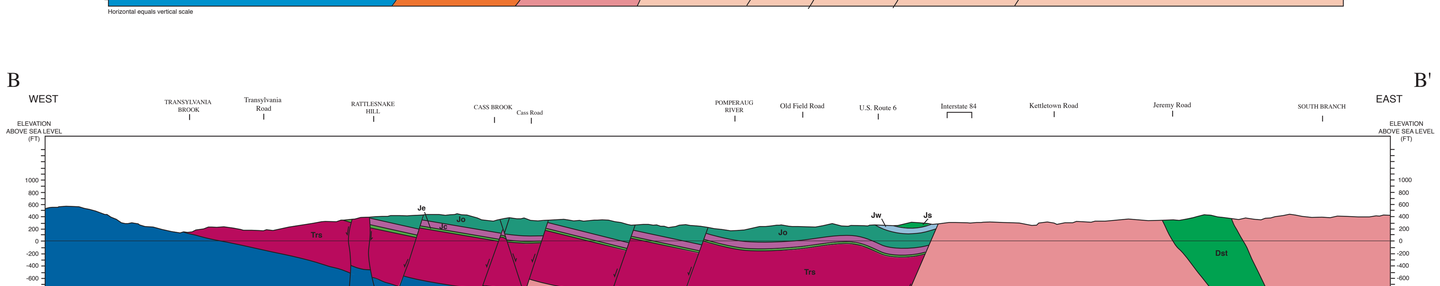
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