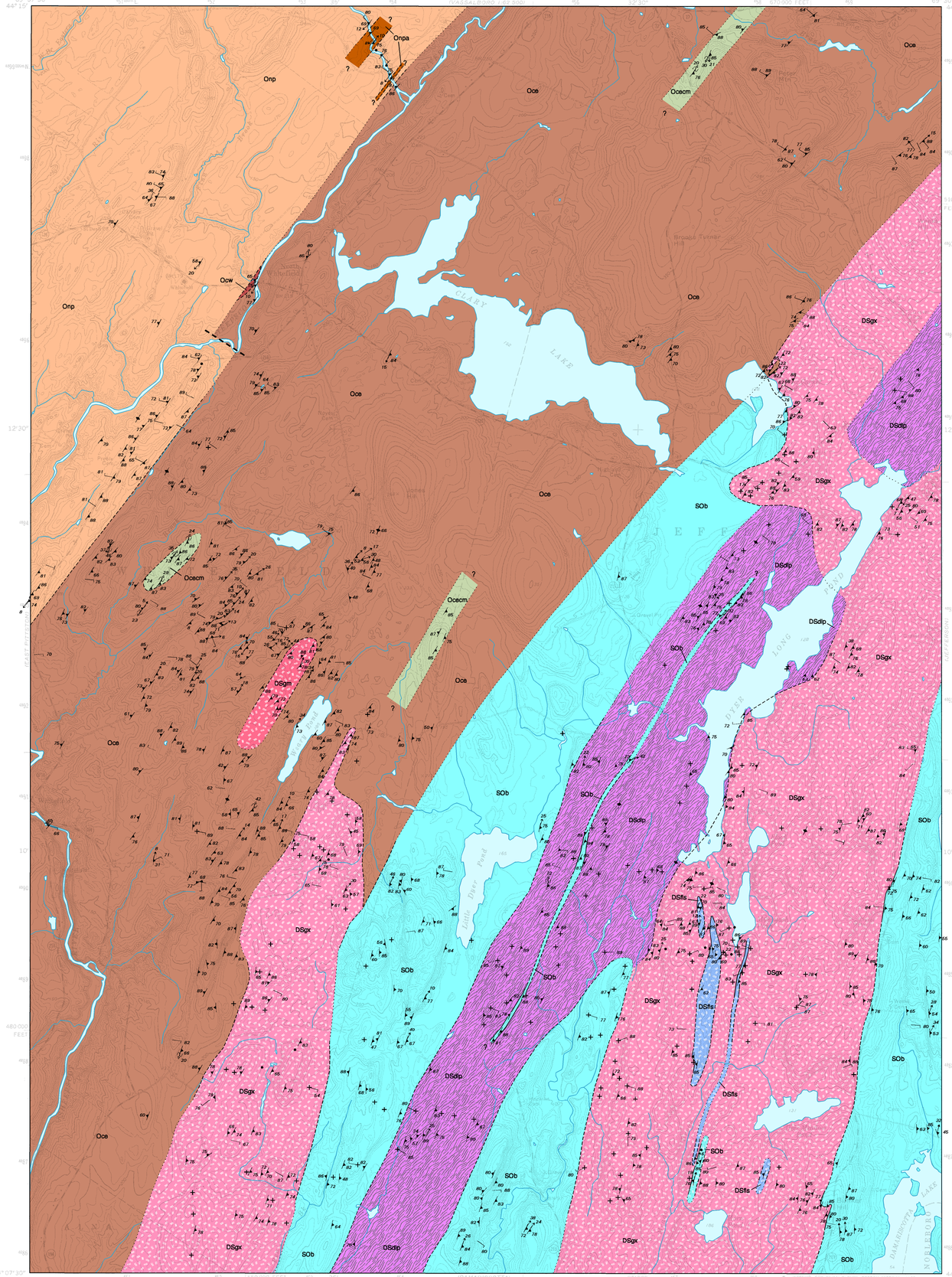

EXPLANATION OF UNITS

Intrusive Rocks

Devonian(?)

+ **Pegmatite.** White, coarse-grained muscovite-feldspar-quartz pegmatite. Locally contains biotite, and rarely tourmaline. Rock structure varies from massive, non-foliated to moderately foliated. Pegmatite bodies are generally parallel to the foliation of the surrounding metamorphic rock units.

Deformed Intrusive Rocks

Devonian-Silurian(?)

DSgm **Muscovite granitoid.** Light gray to white, coarse-grained, penetratively deformed, often sheared, biotite-muscovite granitoid. Contains garnet in some places.

DSgx **Heterogeneous felsic gneiss.** Weakly deformed to penetratively deformed, lithologically heterogeneous, felsic igneous rocks. Muscovite is generally absent, but it is occasionally present in minor amounts. Common rock types include:

Medium-grained, weakly to moderately foliated, equigranular, biotite-bearing granitoid with salt-and-pepper texture.
Gray, medium-grained, equigranular biotite-rich granitoid with occasional centimeter-sized alkali feldspar megacrysts. Biotite makes up 20-25% of the rock.
Coarse-grained, well foliated, salmon colored, biotite-bearing granitic gneiss.

Devonian-Silurian

DSfls **Foliated Lincoln shonkinite.** Purplish to dark gray, well foliated, coarse-grained biotite-bearing porphyritic granitoid, with pinkish to purplish tabular alkali feldspar phenocrysts commonly 2-4 cm in length.

Highly Deformed Rocks

Devonian-Silurian(?)

DSdlp **Dyer Long Pond Complex** (new name). A complex of highly-sheared, penetratively deformed, lithologically diverse, felsic igneous rocks with numerous inclusions of foliated metasedimentary and metaigneous rocks. Locally it is dominated by a white, coarse- to very coarse-grained, quartz and feldspar-rich granitoid with wispy, discontinuous biotite-rich layers ranging in thickness from less than a centimeter to 10 centimeters. Sillimanite is commonly associated with biotite in these rocks. Muscovite is present in some places. Also present are sheared, biotite-rich rocks with chalky, white, angular, alkali feldspar porphyroclasts.

Stratified Rocks

Silurian-Ordovician(?)

SOb **Bucksport Formation.** Calc-silicate rocks are characteristic of the Bucksport Formation. They occur as light gray, medium-grained, diopside-biotite-plagioclase-quartz granofels and gneiss. Medium-grained, biotite-plagioclase-quartz granofels and plagioclase-hornblende gneiss are also part of the Bucksport Formation. All these rocks may be interlayered on a variety of scales.

--relationship unknown--

Ordovician(?)

Onp **Nehumkeag Pond Formation.** A lithologically heterogeneous unit comprised of metamorphic rocks with both igneous and sedimentary protoliths. The unit is dominated by gray, well foliated, medium-grained, biotite-plagioclase-quartz ± garnet gneiss. Other common rock types include biotite-hornblende-plagioclase gneiss in discontinuous lenses; a salt and pepper, biotite-feldspar-garnet-quartz gneiss with garnets less than 3 mm across; and thin, discontinuous layers of sillimanite-bearing metapelite.

Onpa **Amphibolite.** Dark gray to black, medium-grained, well-foliated, epidote-plagioclase amphibolite, locally with garnet. This unit is found as relatively thin, discontinuous layers parallel to the foliation.

--relationship unknown--

Oce **Cape Elizabeth Formation.** Light to dark gray, medium-grained to coarse-grained muscovite-biotite-quartz-feldspar granofels or gneiss, interlayered with coarse-grained feldspathic biotite-muscovite schist. The presence of coarse muscovite spangles is one of the characteristic features of the Cape Elizabeth Formation. Quartz veins of variable thickness down to a few millimeters are common. Calc-silicate layers are also present locally.

Ocecm **Crummet Mountain member.** Black to gray to moderately rusty weathering, medium- to coarse-grained, graphitic, garnet-staurolite-andalusite schist with discontinuous, intensely folded quartz veins with coarse, pink andalusite. The schist is interlayered with gray, medium-grained, micaceous, quartz-feldspar granofels and lesser amounts of calc-silicate. It also includes gray, medium-grained, highly crenulated, muscovite-rich schist.

Cushing Formation.

Ocw **Wilson Cove Member.** Only one small lens a few meters across of this distinctive rock unit was found in the map area. It is located along the contact between the Nehumkeag Pond and the Cape Elizabeth Formations. It is a dense, rusty-weathering, dark gray to black, medium-grained, garnet-biotite schist with abundant 2-3 mm garnets. Some specimens contain radiating sprays of amphibole. Though not yet identified here, similar amphibole in the unit to the northeast has been identified as grunerite (Pankiwskyj, 1976; 1996; West and Peterman, 2004).

GEOLOGIC TIME SCALE

Geologic Age		Absolute Age*
Cenozoic Era		0-65
Mesozoic Era	Cretaceous Period	65-145
	Jurassic Period	145-200
	Triassic Period	200-253
Paleozoic Era	Permian Period	253-300
	Carboniferous Period	300-360
	Devonian Period	360-418
	Silurian Period	418-443
	Ordovician Period	443-489
	Cambrian Period	489-544
Precambrian time		Older than 544

* In millions of years before present. (Okulitch, A. V., 2002, Échelle des temps géologiques, 2002: Commission géologique du Canada, Dossier Public 3040 (Série nationale des sciences de la Terre, Atlas géologique) - RÉVISION.)

Bedrock Geology of the North Whitefield Quadrangle, Maine

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Quadrangle Location

TRUE NORTH

SCALE 1 : 24,000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

SOURCE OF INFORMATION

Field work by T. W. Grover during 2003-2004.

Topographic base from U.S. Geological Survey North Whitefield quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

EXPLANATION OF SYMBOLS

- Outcrop of mapped unit.
- **+** Outcrop of pegmatite.
- 20 Strike and dip of metamorphic foliation. (Inclined, Vertical)
- 20 Trend and plunge of mineral lineation, commonly sillimanite, on foliation plane.
- 20 Trend and plunge of the hinge of a fold in foliation. These F_2 folds are generally upright, shallowly plunging and closed to isoclinal.
- 20 Trend and plunge of the hinge of Z-shaped (dextral) fold in foliation. Moderately to steeply plunging. Interpreted to be related to regional dextral shear that postdates F_2 deformation.
- 20 Strike and dip of joint. (Inclined, Vertical)

EXPLANATION OF LINES

Contact between mapped units. (Well located, Approximately located, Inferred)

Fault, inferred from apparent offset of rock units. (Approximately located)

REFERENCES

Pankiwskyj, K. A., 1976, Preliminary report on the geology of the Liberty 15' quadrangle and adjoining parts of the Burnham, Brooks, Belfast, and Vassalboro quadrangles in south-central Maine: Maine Geological Survey, Open-File No. 76-29, 8 p. report, map, scale 1:62,500.

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