

Geologic Site of the Month  
April, 2009

***Geology at Mt. Pisgah, Winthrop and Wayne, Maine***



44 18' 22.25 "N, 70 1' 25.19" W

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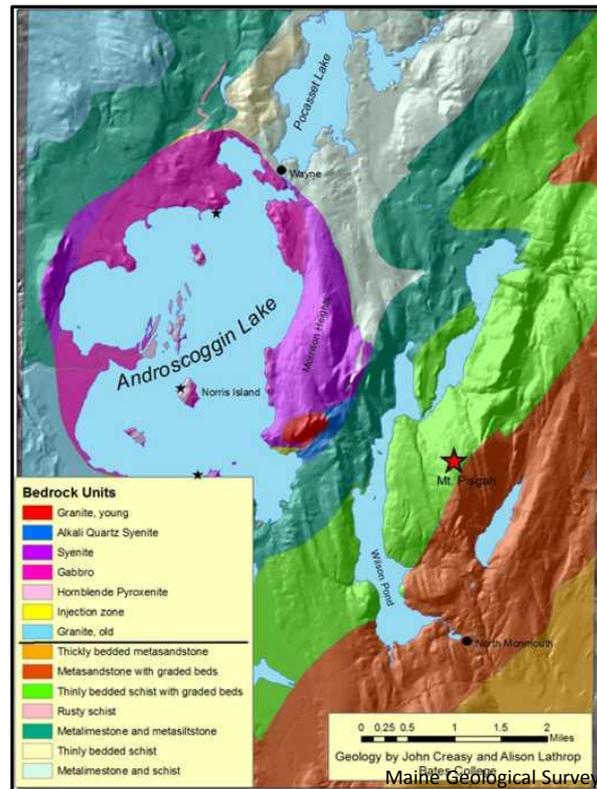
## Introduction

The Mt. Pisgah Conservation Area includes 730 acres of forested hills in the towns of Winthrop and Wayne that are either owned by or under conservation easements with the [Kennebec Land Trust](#). This includes an easement on property that includes the historic fire tower, now owned by the Town of Winthrop. On a clear day the views from the tower (open to the public) are outstanding. An excellent trail leads from a small parking area on Mt. Pisgah Road to the summit.



Bedrock Geology

The area around Mt. Pisgah is underlain with a number of igneous and metamorphic rock units as illustrated in Figure 1. Note how the bedrock controls ridges that extend northeast to southwest. Bedrock is the primary control on topography. Also note the strong glacial streamlining from NNW to SSE. Glacial geology is the secondary control on topography.



**Figure 1.** Simplified bedrock geologic map of the Wayne, Maine, area shown on shaded relief. Based on work by John Creasy and Alison Lathrop, Bates College.



### Geologic History

The metamorphic rocks are all Silurian in age (443-417 Ma) and the igneous rocks that intrude them, primarily the Androscoggin Lake igneous complex underlying Androscoggin Lake, are Carboniferous (~330 Ma). Following the mountain building episode that folded and metamorphosed the rocks, the landscape experienced hundreds of millions of years of erosion, culminating with the last glacial episode.



Outcrops by the Fire Tower

The best place to view the rocks at Mt. Pisgah is at the base of the fire tower, about a mile up the trail. Figures 2-5 show examples of features in the rocks.



**Figure 2.** Glacial grooves (coming toward the viewer) in this exposure at the base of the fire tower attest to the erosive strength of glacial ice. The grooves are developed on thinly bedded schist, with layering that extends from lower left to upper right.

Outcrops by the Fire Tower



**Figure 3.** Minor folds like these in the thin beds of schist are common in the area.

Outcrops by the Fire Tower



Photo by Robert G. Marvinney

**Figure 4.** The silvery lozenge shapes in this image are clusters of the metamorphic minerals muscovite and sillimanite, that develop when aluminum-rich rocks are heated to a high degree.

Outcrops by the Fire Tower



Photo by Robert G. Marvinney

**Figure 5.** Oval lenses like this of calcareous minerals are common in the metamorphic rocks. Metamorphic processes have made them a bit more resistant to erosion, such that they stand slightly above the surrounding rock.



## References and Additional Information

Creasy, John W., 1983, Field trip 11; Bedrock geology of the Androscoggin Lake igneous complex, Wayne and Leeds, Maine, in Hussey, A. M., II, and Westerman, D. S. (editors), Field trips of the Geological Society of Maine, 1978-1983: Geological Society of Maine, Maine Geology, Bulletin no. 3, p. 99-106.

