



# MASSABESIC EXPERIMENTAL FOREST

## York County, Maine



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Located in southwestern Maine, the 3,700 acre (1,497 ha) Massabesic Experimental Forest was established in the late 1930s. The land purchased by the Forest Service for the experimental forest was typical of abandoned agricultural lands across New England that recovered to “old field” pine, mostly eastern white pine. Early studies focused on silviculture and management of eastern white pine. In 1947, following years of drought, a fire destroyed 80 percent of the trees on the experimental forest. Today most stands are a rich mixture of pine and hardwoods, most notably northern red oak. Consequently, research now focuses on mixed pine-oak management with emphasis on wildlife habitat as well as forest products. Part of the research program is on prescribed fire as a management tool. There is also increasing interest in the many seasonal and permanent wetlands on the forest. The permanent wetlands are dominated by some of the most extensive stands of Atlantic white-cedar in New England.



### Assets:

**Scientists:** 4 Northern Research Station scientists are conducting studies on the Massabesic.

**Scientific support:** 1 professional supports the work of these scientists.

**Cooperators:** Other Northern Research Station units, Maine Department of Conservation, Small Woodland Owners Association of Maine, Conservation Commission, town of Alfred, Maine, White Mountain National Forest, Northeastern Area, State & Private Forestry, University of Maine, University of New Hampshire.

### Needs:

**Annual operating costs:** \$75,000

**Critical needs:** Install high speed internet connection; establish protocol for managing long-term data and metadata and making it readily accessible for cooperators.

**Long-term needs:**

- Expand quarters and provide laboratory facilities
- Upgrade GPS/GIS capabilities and improve expertise among staff
- Modernize data collection technology with electronic data-logging systems and wireless remote monitoring capability



**The Massabesic Experimental Forest is administered by:**

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# More About the Massabesic Experimental Forest

**Location:** Lat. 43°27'8" N, long. 70°40'44" W

The Massabesic Experimental Forest is located in the towns of Alfred and Lyman, ME, about 25 miles southwest of Portland.

**Vegetation:** The eastern white pine-northern red oak forest type dominates upland sites on the Massabesic. Eastern hemlock and red maple are also well represented throughout the forest. Nearly pure stands of paper birch occupy some areas cleared by the 1947 fire and subsequent salvage. Other cleared areas were planted or direct seeded to white pine or a mixture of white and red pine. Exotic species, including western white and Scots pines, were also planted. Common woody shrubs include beaked hazelnut, several species of Viburnum, winterberry, witch-hazel, sheep-laurel, and Vaccinium species. Common herbaceous plants are star flower, Canada mayflower, bracken fern, wild sarsaparilla, wintergreen, wild oats, and mountain rice. There are few nonnative invasive plant species.

**Climate:** The Massabesic climate is moderated by its proximity to the Atlantic Ocean, which is about 20 miles away. Average annual temperature is 46.6 °F (8.1 °C), with July normally warmest at 70.2 °F (21.2 °C) and January coldest at 21.5 °F (-5.8 °C). Total annual precipitation averages 47 inches (119 cm), with September typically driest and November wettest. May 4 is the average date of the last killing frost and the growing season averages 157 days.

**Research—past and present:** When the Massabesic was established, permanent sample plots were installed but many plot location stakes were lost in the 1947 fire and never re-established. Following the fire, white pine management research was re-initiated but emphasis shifted to artificial regeneration research. Some of the earliest work on direct seeding and use of herbicides for releasing young stands from competition was done on the Massabesic Experimental Forest. Research on regeneration led to a focus on the then-developing field of forest genetics and tree improvement. In addition, the preponderance of young white pine stands and interest in genetics resulted in a research program on white pine weevil resistance. Recent research includes investigations of soil nitrogen processes, aquatic insects, amphibian and owl ecology, comparison of methods for sampling coarse woody material, and silvicultural treatments to regenerate and sustain pine-oak mixed forests.

**Research opportunities:** There are ample opportunities for research on all aspects of ecology and management of pine-oak and other mixed-species forests, especially with regard to meeting information needs of non-industrial landowners. Manipulative experiments are possible in collaboration with Northern Research Station scientists. Project staff members are willing to facilitate nonmanipulative studies that do not conflict with the long-term research and demonstration missions of the Massabesic.

**Facilities:** The Massabesic Experimental Forest has quarters for up to 8 people, a small office, and work and storage space.

More information can be found at: <http://www.nrs.fs.fed.us/ef/locations/me/massabesic/>



University of Maine cooperator