

MASSABESIC EXPERIMENTAL FOREST

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The Massabesic Experimental Forest (MEF) is typical of much privately owned non-industrial forest land in New England. Located in Maine's southernmost county, the MEF was once farmland that was abandoned between the Civil War and the Great Depression. The eastern white pine-northern red oak forest type dominates upland sites. Eastern hemlock and red maple are also well represented throughout the forest.

The USDA Forest Service purchased the land between 1937 and 1942. The 3,700-ac MEF consists of two units, North and South, which are approximately the same size. About 3,000 ac of the MEF burned in October 1947, in the large fire that burned across southwestern Maine. Eighty percent of the timber on the MEF was either destroyed by the fire or salvaged.

When the MEF was established, permanent sample plots were installed, but many plot location stakes were lost in the 1947 fire and not re-established. Following the 1947 fire, emphasis changed from white pine management to pine artificial regeneration research, including aerial seeding and pesticides to control competing vegetation and white pine weevil. Management research was discontinued in the 1960s and a series of genetics studies searching for white pine weevil resistance was initiated, followed by a broader focus on tree improvement research. Recent research included investigations of soil nitrogen processes, aquatic insects, amphibian and owl ecology, and an inventory of all upland vascular plants, including trees, shrubs, and herbaceous plants.

The inventory was conducted on a grid of 399 sample points, using a combination of variable radius plot sampling and fixed-radius plots (Dibble et al. 2004). We found six forest cover types; the white pine type was most common, followed by pine-oak, and pine-hemlock. We identified 464 vascular plants, or about 25 percent of all vascular plants found in Maine. White pine, hemlock, red oak, and red maple were the most abundant and well-distributed tree species. Red maple was found on 94 percent of the plots, white pine on 86 percent, and red oak on 84 percent. Hemlock, white pine, red maple, and red and white oaks are the most common tree seedlings. With an average of more than 500 stems/ac, hemlock seedlings are three times more abundant than any other species on the MEF. Red maple seedlings are slightly less abundant than either pine or oak, but they are more uniformly distributed. Thus, without management or natural disturbance, the composition of the forest will likely shift toward more shade-tolerant species.

Literature Cited

Dibble, A.C.; Rees, C.A.; Sendak, P.E.; Brissette, J.C. 2004. **Vegetation of forested uplands in the Massabesic Experimental Forest**. Gen. Tech. Rep. NE-320. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 71 p.