

Squannassit Area of Critical Environmental Concern (ACEC)

Designation Date: December 11, 2002

Total Approximate Acreage: 37,450

Watershed(s): Nashua River

Municipalities (acres; % of ACEC): Ashby (2,930; 8%), Ayer (690; 2%), Groton (3,990; 11%), Harvard (250; <1%), Lancaster (10; <1%), Lunenburg (4,010; 11%), Pepperell (6,030; 16%), Shirley (4,490; 12%), Townsend (15,050; 40%)

Resource Summary

Overview

The Squannassit ACEC is approximately 37,450 acres in size, and is located in portions of the 9 towns listed above. For the most part, the Squannassit ACEC lies along and to the west of the Nashua River, from a section of Route 2 in the Towns of Harvard and Lancaster north to New Hampshire. The boundary of the Squannassit ACEC connects with the boundary of the Central Nashua River Valley ACEC to the south, along the Nashua River corridor. The Squannassit ACEC is also adjacent to the Petapawag ACEC, which is located along and to the east of the Nashua River, from the Town of Ayer north to New Hampshire. The Squannassit and Petapawag ACECs share the Nashua River corridor and its associated physical, biological and cultural resources and history. Although the two areas were nominated and designated as separate ACECs, it is important to state that the Nashua River corridor is a central resource feature of both of these ACECs (as well as a central feature of the Central Nashua River Valley ACEC.)

Water Supplies

There are highly significant drinking water resources present within the ACEC. These include portions of several high-yield aquifers as defined by the United States Geological Survey (USGS) in the areas of Pearl Hill-Willard Brook and Witch Brook in Townsend, Stewart Brook in Pepperell, the Squannacook and Nashua Rivers in Groton, Shirley and Ayer, and Grove Pond in Ayer. Extensive medium-yield aquifers are located along the length of the Squannacook River in Townsend, Groton, and Shirley, Sucker Brook and the Nissitissit River in Pepperell, and Morse and Catacunemaug Brooks in Shirley. The combined area of high- and medium-yield aquifers within the ACEC is approximately 6,250 acres, or 17% of the ACEC. Drawing upon the extensive ground water supplies of the ACEC, according to GIS mapping and recent data from the Department of Environmental Protection (DEP), there are eight municipal wells and two public water supply facilities for the Devens Enterprise Zone (DEZ) located within the ACEC.

Habitat Resources

According to comments provided by the Natural Heritage & Endangered Species Program (NHESP), documented records from their database indicate that there are 23 state-listed rare species known to occur within the boundaries of the Squannassit ACEC. This number includes 7 Endangered Species, 3 Threatened, and 13 listed as species of Special Concern. Priority Habitats and Estimated Habitats for Rare Wildlife mapped by the NHESP cover approximately 6,010 acres or 16% of the ACEC.

The BioMap project of NHESP, published in 2001, delineated as Core Habitat those areas of the state which, if protected, would protect the most viable populations of rare plants and animals, the best examples of natural communities, and the breadth of biodiversity of the state. About 17,160 acres or 46% of the Squannassit ACEC is BioMap Core Habitat. In addition, about 12,380 acres or 33% of the ACEC is designated as Supporting Natural Landscape, which are large, generally unfragmented areas that safeguard the Core Habitat while also including habitat for the common species of Massachusetts. Combined Core Habitat and Supporting Natural Landscape cover approximately 80% of the ACEC.

There are 23 NHESP Certified Vernal Pools within the ACEC. Also within the ACEC are 369 Potential Vernal Pools as identified through photo-interpretation by the NHESP in the 2001 Massachusetts Aerial Survey of Potential Vernal Pools.

The area supports a remarkable richness of wildlife ranging from concentrations of rare and endangered species to deer, moose, fisher, bobcat, otter, and even occasional black bear. The Squannacook and Nissitissit rivers and 16 tributary streams are classified as cold water fisheries that support trout, including brown, brook and rainbow trout. These rivers were designated Outstanding Resource Waters for these fisheries. Trout are stocked in 12 streams and wild trout occur in 5 streams and the rivers. Ponds, rivers and streams also provide habitat for warm water fish.

Land Use and Open Space

According to Mass/GIS data, approximately 80% of the ACEC is comprised of forest and farmland. (Approximately 27,570 acres or 74% of the ACEC is comprised of forestland and approximately 2,310 acres or 6% is farmland.) Nearly 50% of the ACEC is comprised of protected open space and land under Chapter 61, 61A and 61B tax classification status. (Protected open space covers approximately 14,660 acres or 39% of the ACEC, and Chapter 61, 61A and 61B lands cover another 3,280 acres or 9% of the ACEC.) State-owned open space covers approximately 10,000 acres or 27% of the ACEC.

The area contains unique and highly significant archaeological and historical resources, as well as scenic landscapes of statewide significance. Portions of Ayer, Groton, Lunenburg, Pepperell, Shirley and Townsend have been included in the 1982 DEM Massachusetts Scenic Landscape Inventory, covering approximately 17% of the ACEC.

Water bodies included (partially or entirely) in the ACEC

Lakes, Ponds: Grove and Plow Shop Ponds, Ayer; pond north of Wolf Swamp, Dunstable; Flat Pond, Groton; H&V Millpond, Groton/Shirley; pond at Route 119/113 junction, Pepperell; Phoenix Pond, pond north of Hickory Hills Lake, Shirley; Harbor and Vinton Ponds, Townsend

* **Great Ponds:** Heald Pond/Blood Pond, Pepperell; Squannacook Pond (Shirley)

Rivers, Streams, Brooks, Creeks: Nashua River, Ayer/Groton/Harvard/Lancaster/Pepperell/Shirley; Squannacook River, Groton/Shirley/Townsend; Nissitissit River, Pepperell; Dead River, Groton; Trapfall and Willard Brooks, Ashby; Pearl Hill Brook, Ashby/Lunenburg/Townsend; Locke Brook, Ashby/Townsend; Cold Spring, Nonacoicus and Willow Brooks, Ayer; Wrangling Brook, Groton; Flurcom Swamp Brook, Lunenburg; Mulpus Brook, Lunenburg/Shirley; Bancroft, Beaver, Gulf, Mine, Nutting, Robinson and Sucker Brooks, Pepperell; Stewart Brook, Pepperell/Townsend; Beaver Pond, Catacunemaug, Morse, Spruce Swamp, Trap Swamp, Trout, and Walker Brooks, Shirley; Pumpkin Brook, Shirley/Townsend; Bayberry Hill, Bixby, Mason, Trout, Walker, Witch and Wolf Brooks, Townsend; and several unnamed brooks.

Outstanding Resource Waters (ORWs): The 2 rivers and 26 streams located within the Squannacook and Nissitissit sub-basins have been designated as Outstanding Resource Waters (ORW) pursuant to the Massachusetts Rivers Sanctuary Act of 1975 and the Massachusetts Surface Water Quality Standards (310 CMR 4.00). The land area of these ORW sub-basins is approximately 26,310 acres or 70% of the ACEC.

* **Boundary Note:** The final boundary includes Great Ponds and navigable rivers and streams as determined by the Massachusetts Waterways (or Chapter 91) Regulations (310 CMR 9.00), administered by the state Department of Environmental Protection. These Great Ponds and waterways will be included within the boundary of the Squannacook ACEC, but the effective date for these areas will be within a period of up to five years following the date of this ACEC designation. Further study and resource management planning for these water bodies is needed before they can be included within the boundary of the ACEC. See Squannacook ACEC designation document for more information.