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Acadia National Park (ACAD, Maine)

Acadia National Park was originally established in 1916 as the Sieur de Monts National Monument by Presidential Proclamation 1339. In 1929, the name was changed to Acadia National Park (45 Stat. 1083) which authorized the expansion of the park. Presently, Acadia National Park protects 47,498 acres, including the highest rocky headlands on the Atlantic shore of the United States (Fig. A.1). Acadia National Park protects 30,300 on Mount Desert Island, 2,728 acres on Isle Au Haut 2,194 acres on Schoodic Peninsula, 10,452 acres in conservation easements and 1,110 other acres, all within the Acadian Archipelago of down east coastal Maine. The glacial history that has shaped Acadia is especially apparent in Somes Sound, the inlet bisecting Mount Desert Island and the only fjord on the east coast of the United States.

Located in the Northeastern Coastal Zone ecoregion at 44 degrees latitude, Acadia has temperate climate greatly influenced by the maritime conditions. Acadia is designated a mandatory Class I federal area under the Clean Air Act placing stringent constraints on facilities emitting air pollutants that may affect park resources.

The ecological importance of the Acadian archipelago is widely accepted with special interest to the role the islands play as nesting and wintering sites for a large number and wide diversity of bird species. Acadia is located in a broad transition zone between southern deciduous and northern coniferous forests with local habitats ranging from seashore to mountaintop including but not limited to old growth spruce forests, wetlands, and jack pine forests. The park also supports breeding pairs of peregrine falcon (*Falco peregrinus*) and bald eagles (*Haliaeetus leucocephalus*) as well as the largest wintering population of harlequin ducks (*Histrionicus histrionicus*). The enabling legislation mentions Acadia's historic significance and great scientific interest. Especially noteworthy natural resources in the park include old growth forests, sub-alpine communities, heaths, meadows and marshes, as well as a diverse flora and fauna. Nearly 20% (183) of the vascular plants have been designated as locally rare or State-listed, 6 are globally rare, and these numbers might increase with additional floristic inventory. One third of the vascular plants (283 species) are exotic.

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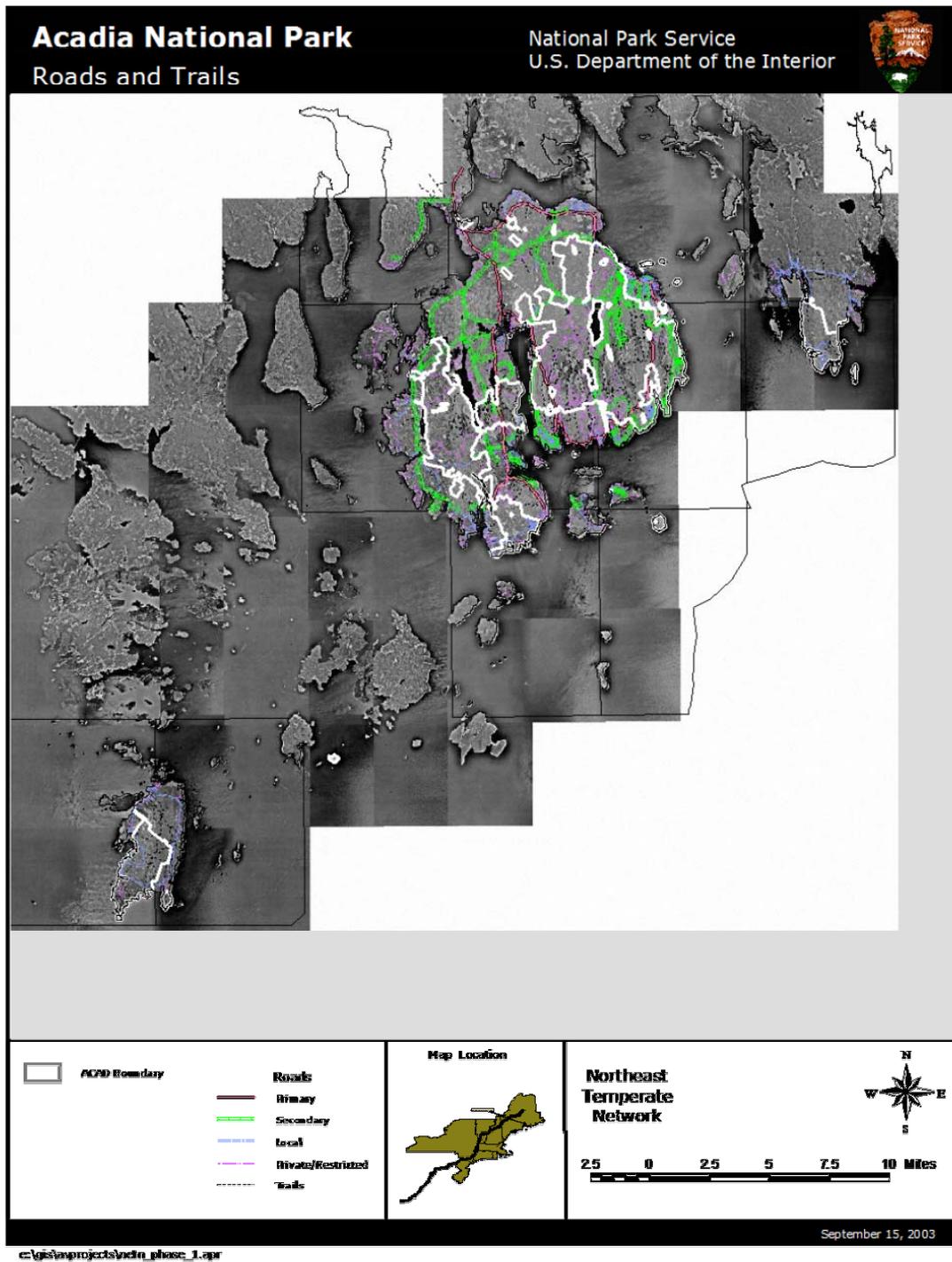


Figure A.1. Boundary map of Acadia National Park showing roads and trails.

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Appalachian National Scenic Trail (APPA, ME-PA)

Established as the first National Scenic Trail by Congress with passage of the National Trails System Act in 1968 and amendments, the Appalachian National Scenic Trail is a continuous marked footpath extending approximately 2,160 miles across the Appalachian Mountains from the summit of Springer Mountain, Georgia to the summit of Mount Katahdin, Maine. The entire Appalachian National Scenic Trail is a unit of the National Park System, administered broadly by the National Park Service with over 105 agencies and organizations involved in the cooperative management of the trail.

The Northeast Temperate Inventory and Monitoring Network presently includes the Appalachian Trail from Mount Katahdin to the Pennsylvania-Maryland border and will work with other networks, parks, and agencies to develop long-term ecological monitoring priorities for the entire corridor. This section of the trail covers 1,108 miles, includes 155,972 acres of state and federally managed lands, and 1,003 documentations of rare occurrences and exemplary ecological communities (based on Natural Heritage Inventories). The Appalachian Trail traverses 4 ecoregions from ME to MD. From Maine to Pennsylvania the Trail is located in the Northeastern Highlands ecoregion, crossing briefly into the North Central Appalachians before extending through Maryland in the Ridge and Valley ecoregion (Fig. A.3). Ranging from wetlands to alpine vegetation communities, this section of the Appalachian Trail is representative of all terrestrial communities in the Northeast. Including many alpine summits, the Trail contains some of the last remaining old growth forests in the East that are now subjected to high levels of human disturbance including air pollution, land cover change, and invasive species.

Land cover change adjacent to the Trail was identified as a priority resource management issue. Conservation lands within 150 miles of the Trail corridor are patchily distributed (Fig. A.4)

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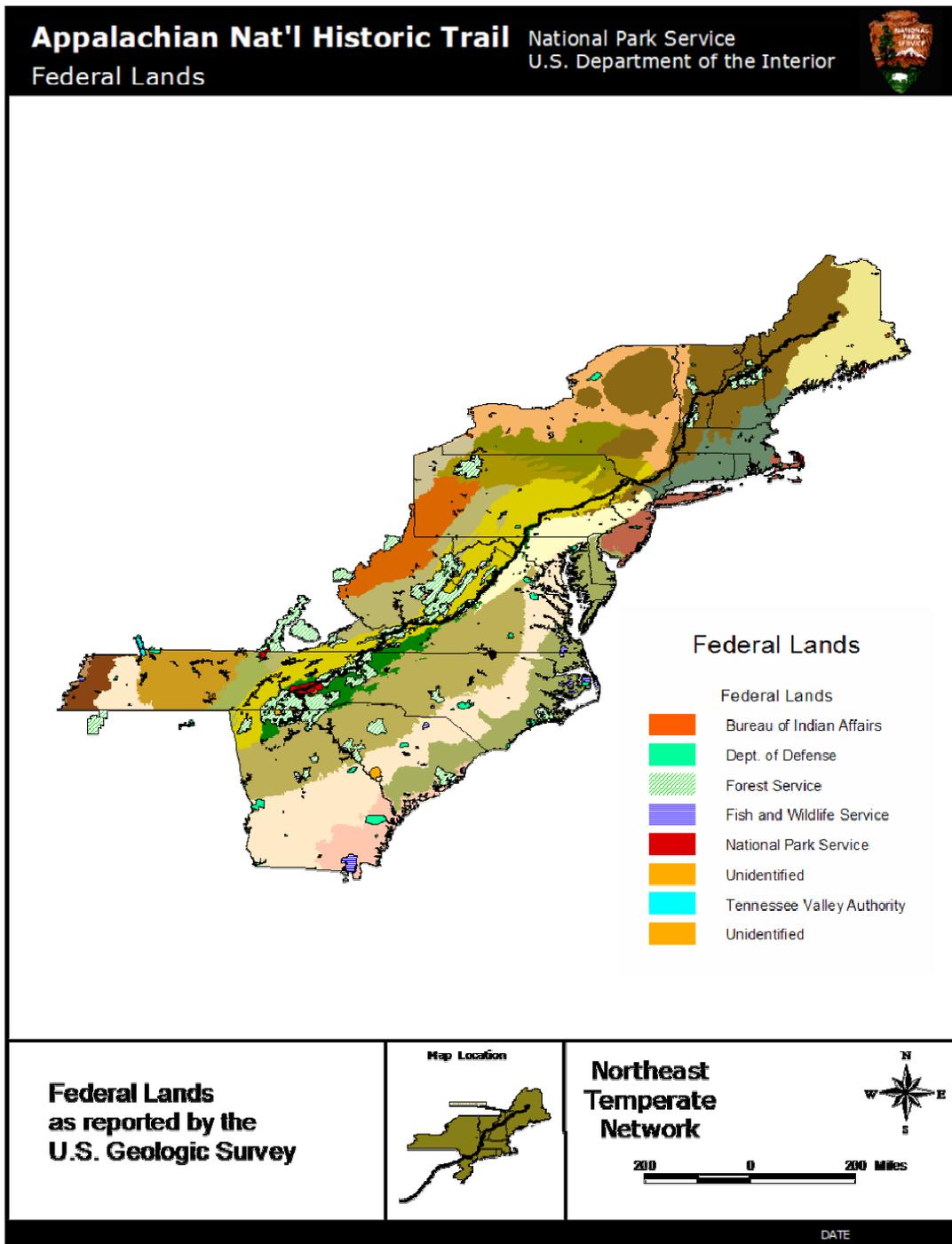


Figure A.3. Ecoregions and federal lands associated with the Appalachian Trail. The AT crosses 6 NPS units, 1 USFWS Refuge, 8 National Forests, and 67 state parks, forests and other lands (not shown).

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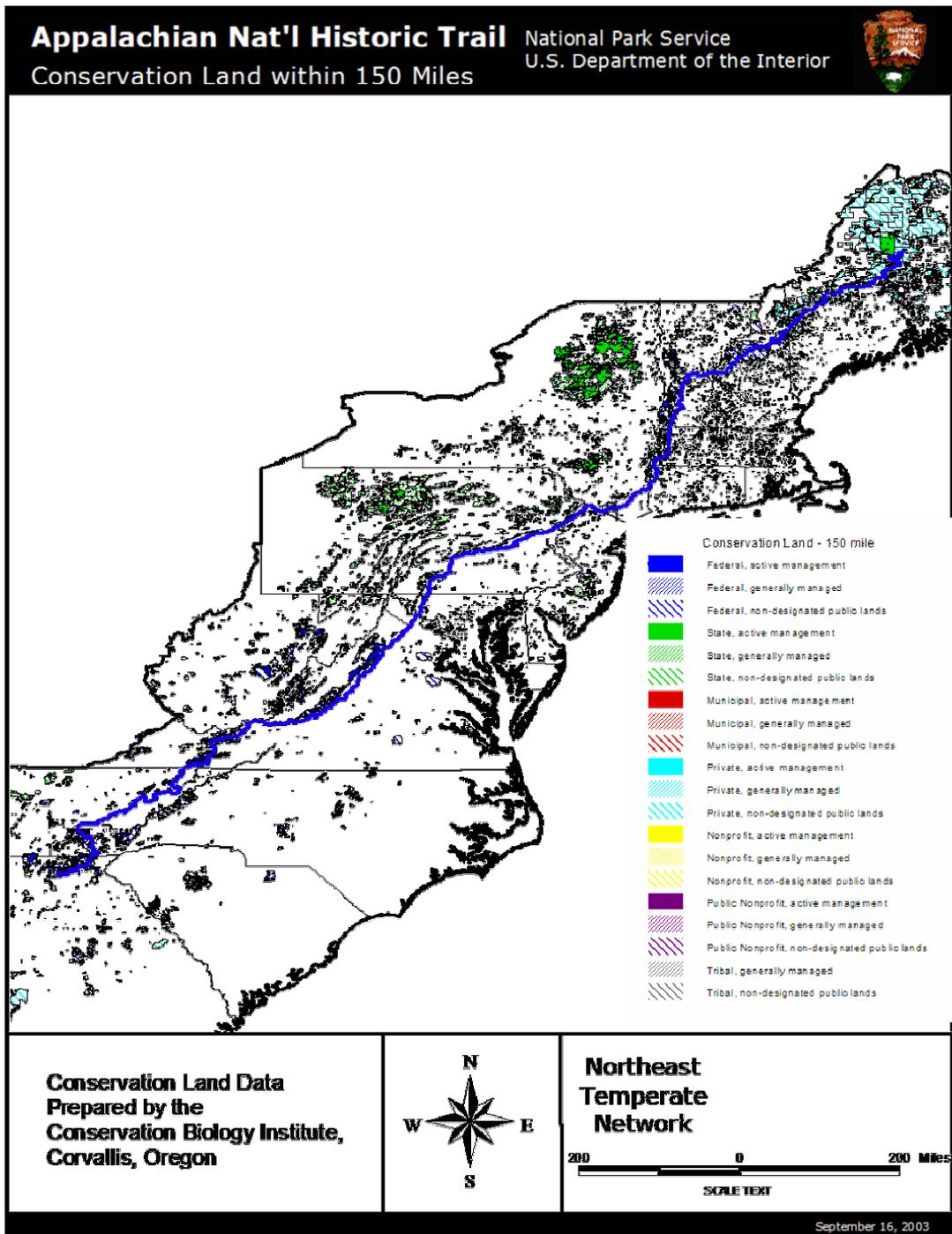


Figure A.4. “Conservation” Land ownership within 150 miles of the Appalachian Trail.

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Boston Harbor Islands a national park area (BOHA, Massachusetts)

The Boston Harbor Islands became a unit of the National Park System in November 1996 by an act of Congress (Public Law 104-333) that contains several provisions which, in total, make this a national park like no other. The 34 islands (and former islands) of Boston Harbor, range in size from less than 1 acre to 214 acres and together encompass 1,600 acres of land over 50 square miles (Fig. A.5). The Boston Harbor Islands are unique geologically as they are part of the only drumlin field in the United States that intersects a coastline. The islands have served numerous public and private uses and are a unique example of an island cluster intimately tied to the life of a city. Although within sight of a vibrant and densely populated city of Boston, Massachusetts, the islands offer the visitor a sense of isolation.

Located in the Northeastern Coastal Zone ecoregion at 42 degrees north latitude in Massachusetts Bay (part of the Gulf of Maine), the Boston Harbor Islands have a humid maritime climate characterized by a moderate annual range of temperatures and definite summer and winter seasons. The Massachusetts Bay was named an Estuary of National Significance in 1990, making programs to enhance the natural and scenic resources of the bay possible. The islands are located in a Class II Air Quality area, indicating that the state may permit a moderate amount of new air pollution as long as these increases do not exceed established baseline concentrations.

Despite massive human and natural alteration, the islands feature freshwater and saltwater marshes, dunes, numerous “heads” (the existing drumlins), ledges and cliffs, tidal flats and dense forest on larger islands, and nesting habitat as well as “haul out” habitat for marine bird and mammals. The flora and fauna of the islands reflect a long history of human use and alterations. The islands are thought to have been covered with mature forests of hemlock, maple, oak, pine, and hickory but presently, most of the islands are considered to be dominated by exotic, early successional vegetation.

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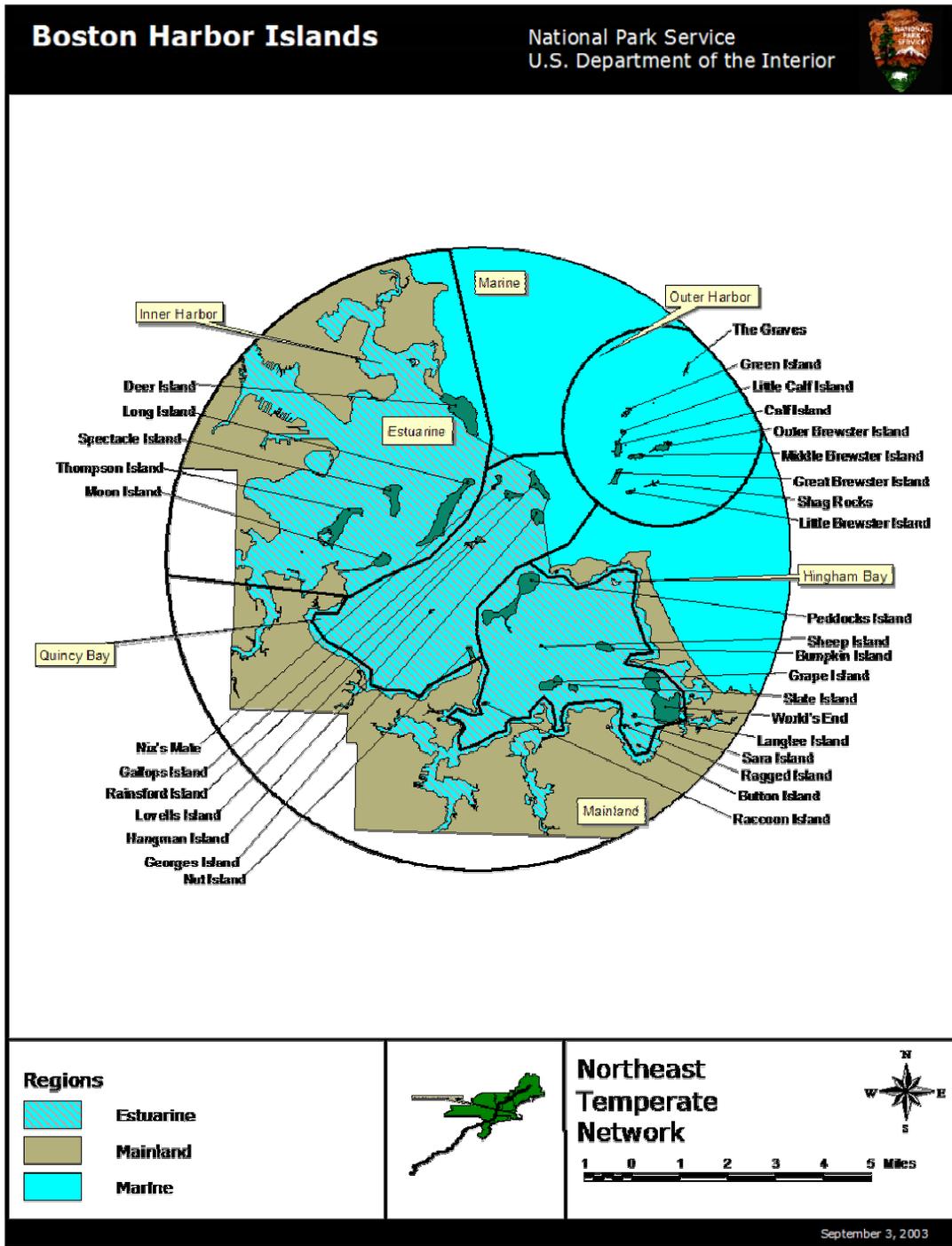


Figure A.5. Location of Boston Harbor Islands.

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Marsh-Billings-Rockefeller National Historical Park (MABI, Vermont)

Marsh-Billings-Rockefeller NHP is the first unit of the National Park system to focus on the history of conservation and land stewardship in America (Fig. A.6). The park was gifted to the National Park Service by Laurance S. and Mary F. Rockefeller, established as a National Park in 1992, and opened to the public in June, 1998. The Park, named for George Perkins Marsh, one of the nation's first global environmental thinkers, and author of "Man and Nature" is located in the Green Mountains of Central Vermont. The Park interprets the history of conservation with tours of the mansion and the surrounding 550-acre forest. The Park includes the Mt. Tom woodland, one of the earliest surviving examples of scientifically informed reforestation and forest management in the United States. The establishment of the Park directed that the tradition of professional forestry practiced on Mt. Tom for almost 125 years be continued by the National Park Service as an educational demonstration of forest stewardship and to preserve the cultural landscape.

Marsh-Billings-Rockefeller NHP is located in the Northeastern Highlands ecoregion and includes northern hardwoods, conifer plantations, cliff/rocky outcrop communities, open fields, streams, pond, vernal pools, and seeps (Figure A.7). The mansion is a National Historic Landmark and the residential complex and farmland are part of a National Historic District.

The Park represents one of the earliest examples in New England of active reforestation efforts. Coniferous plantations of both native and non-native species were established beginning in the 1880s and presently comprise 26% of the Park's area. Reforestation also occurred in many areas of the forest as a result of agricultural abandonment, resulting in naturally regenerated northern hardwood, hemlock, and mixed forests. The Park's "patchy" forest mosaic reflects this history of alternate reforestation approaches and varied successional trajectories.

The Park includes a diversity of stand types as well as pronounced visual contrasts and view corridors created by open pastures and fields surrounded by dense forest plantations. Visitor experience of alternating openness and enclosure is further enhanced by the 14-mile system of 19th century carriage roads winding through the forest and over Mt. Tom (Fig. A.6). As a unit of the National Park System, the forest will be managed to maintain these unique and distinctive cultural and visual qualities.

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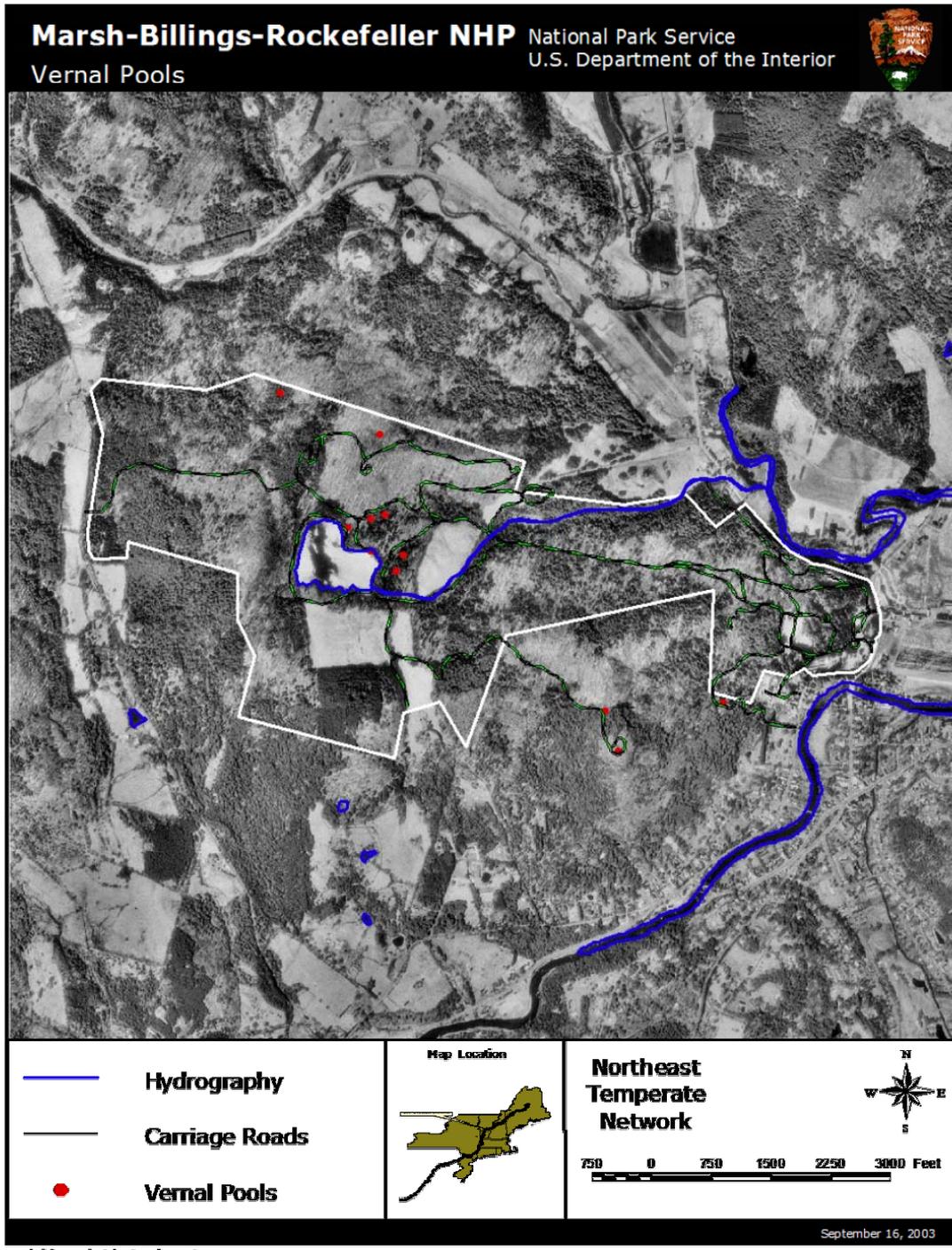


Figure A.6. Hydrography, carriage roads, and vernal pool locations at Marsh-Billings-Rockefeller NHP.

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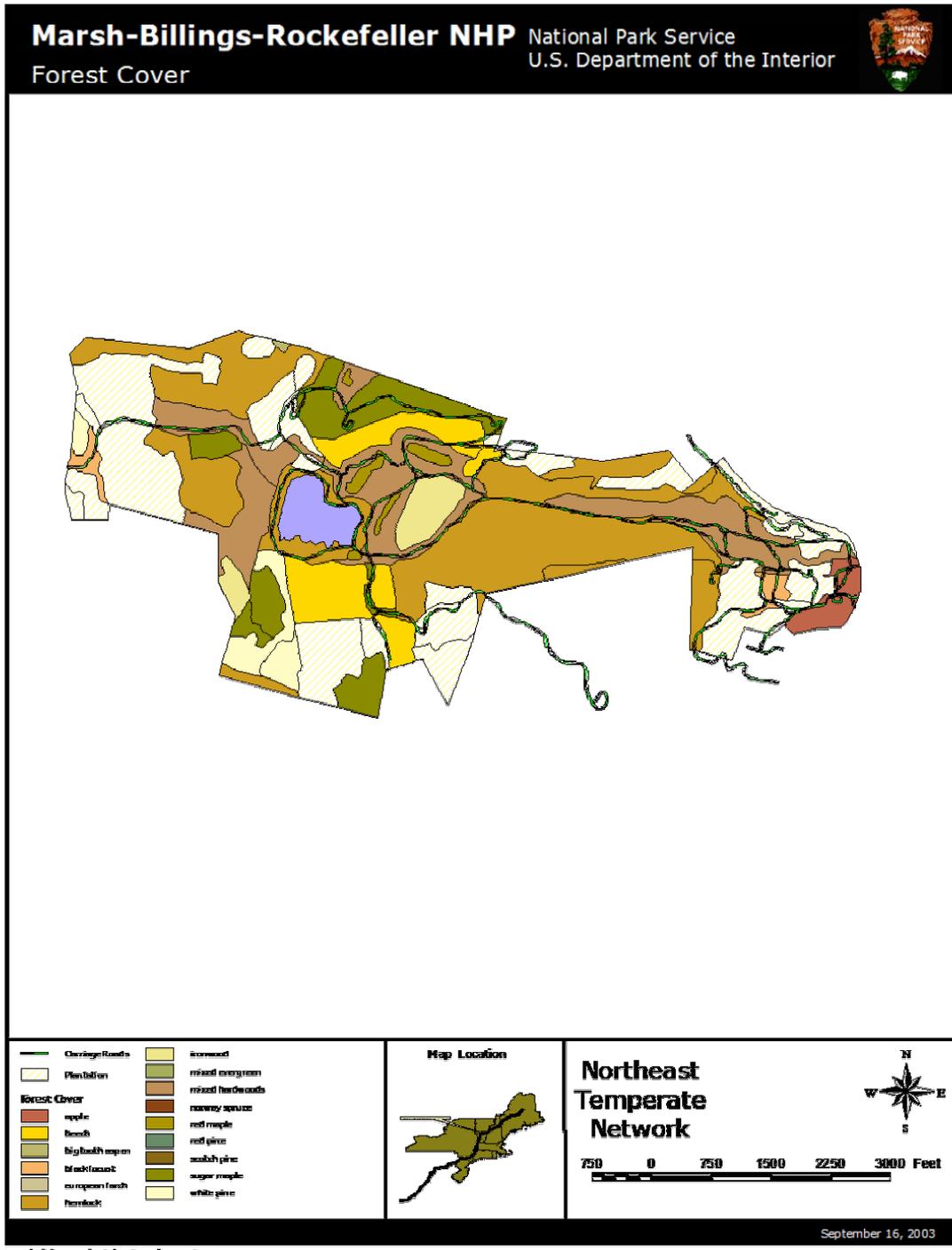


Figure A.7. Land cover types showing plantations and natural stands at Marsh-Billings-Rockefeller NHP.

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Minute Man National Historical Park (MIMA, Massachusetts)

Minute Man NHP was established in 1959 to consolidate, preserve, and selectively restore and interpret portions of the Lexington-Concord Battle Road in Concord, Lincoln, and Lexington Massachusetts. The entire park is listed as a National Historic District on the National Register of Historic Places. The 750 acre park is comprised of 3 units (Battle Road, North Bridge, and Wayside units) where the opening battle of the American Revolution was initiated and the site of “the shot heard around the world” at the North Bridge (Fig. A.8).

The Park, located in the Northeastern Coastal Zone ecoregion, is characterized by flat plains and low-rolling hills varying in elevation from 120’ to 307’ above sea level. The Park lies along the watershed boundaries of the Concord River flowing north, the Shawsheen River flowing south, and the Charles River flowing east. The primary resource management objectives of the Park are to preserve the cultural resources and reestablish the historic landscape. The cultural resources consist of 17 buildings, numerous monuments and archaeological sites and the historic landscape consists of fields, forest, and wetlands. About one third of the park is wetlands, including forested wetland, shrub swamp, emergent wetlands, river/stream, ponds, vernal pools, and approximately one third is upland forests. Remaining lands include 150-200 acres agricultural lands (row crops, hay fields, orchards), meadow, lawn, structures, and roads and trails. Invasive exotic plants are a primary natural and cultural resource management concern due to their impacts on natural communities and cultural landscapes (Fig. A.9).

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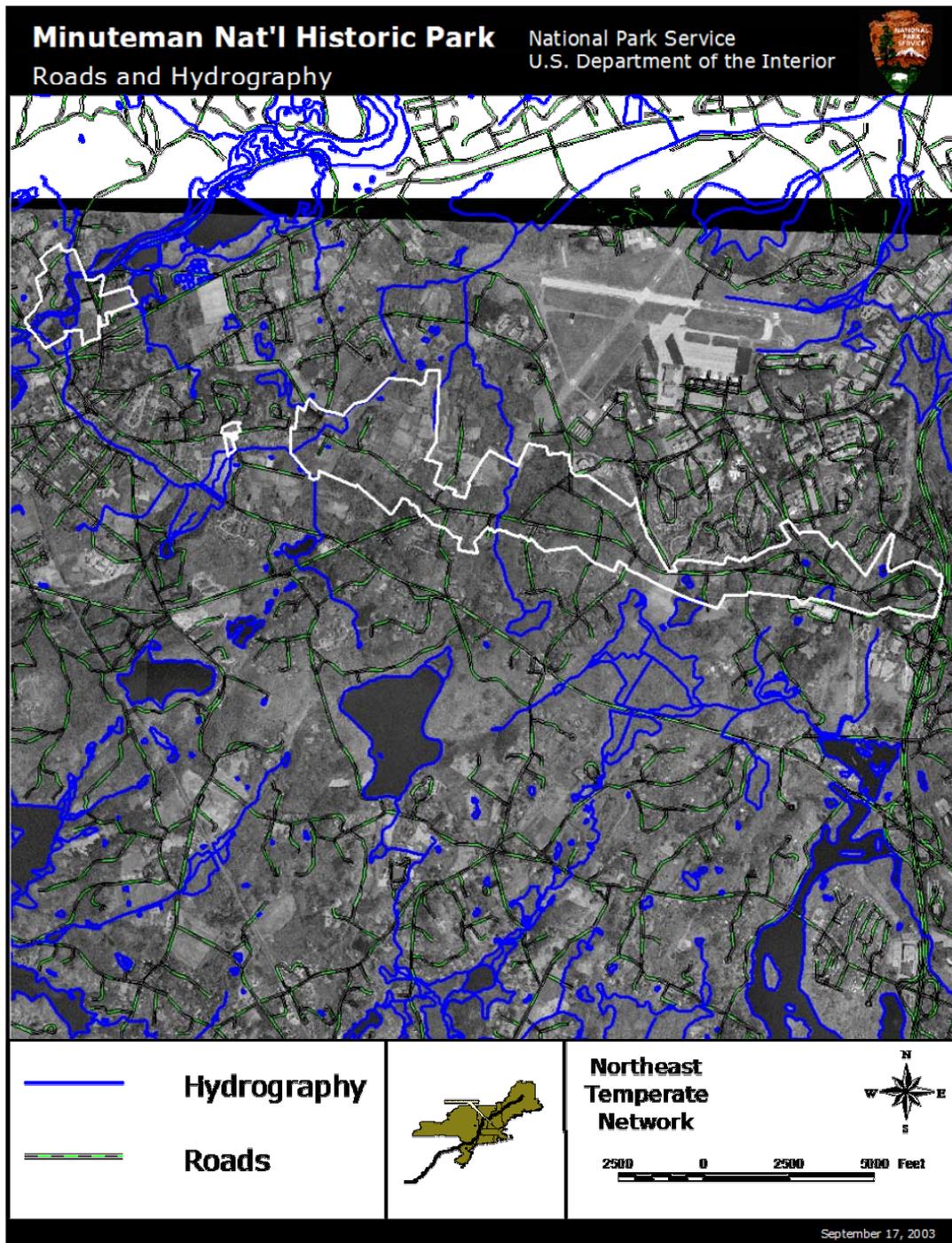


Figure A.8. Hydrography, roads, and the Minute Man NHP boundary.

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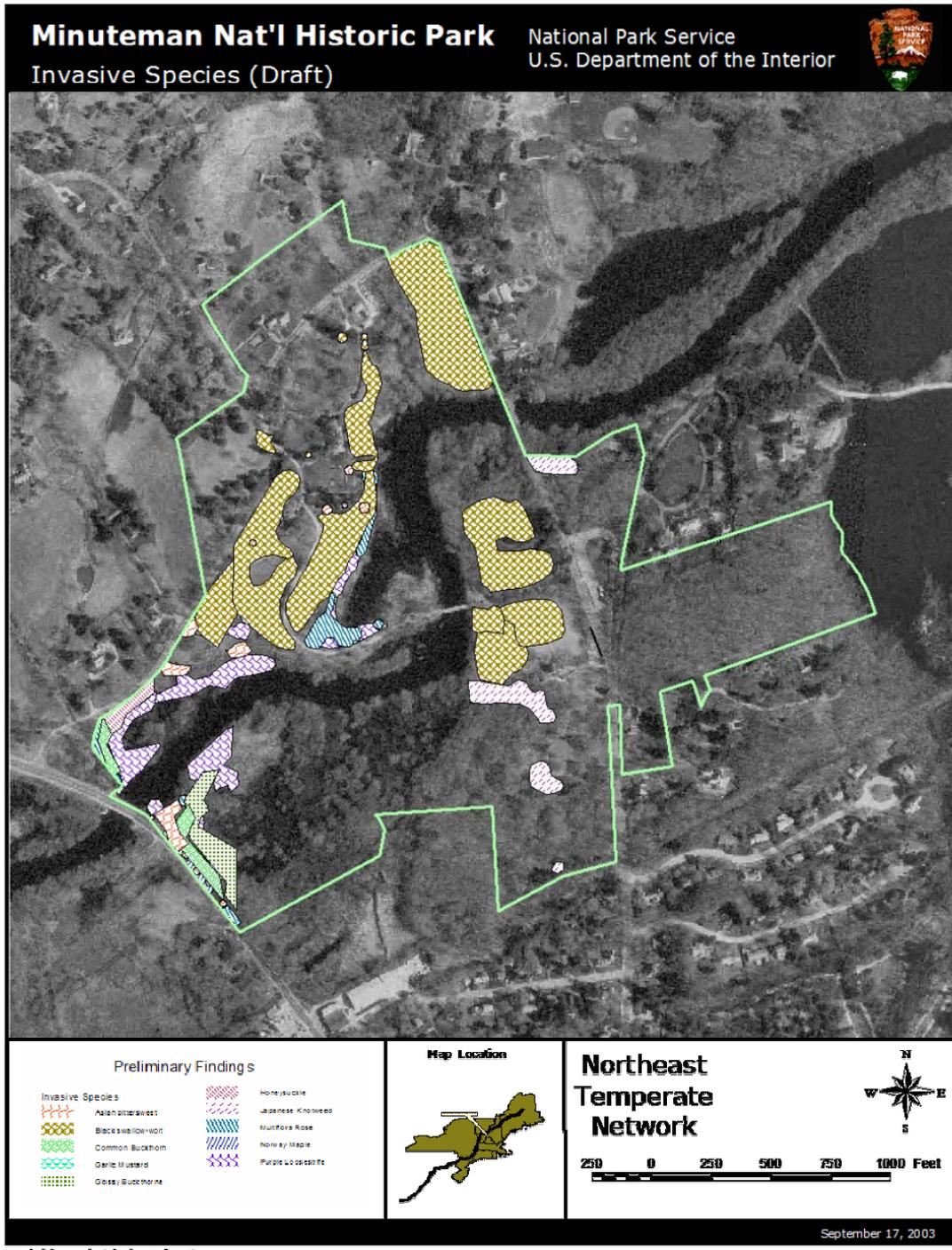


Figure A.9. Invasive plants at the North Bridge Unit of Minute Man NHP.

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Morristown National Historical Park (MORR, New Jersey)

Morristown National Historic Park, the first national historic park, was established in 1933 to preserve the lands and resources associated with the winter encampments of the Continental Army during the War for Independence. Historical sites within the park include the historic Jacob Ford Mansion (General Washington's military headquarters during the winter of 1779-1780); the Upper Redoubt site (built in 1777 following the battles of Princeton and Trenton) in the Fort Nonsense Unit of the park; the historic Wick House & Farm (headquarters of General Arthur St. Clair); the 18th century Guerin house (home of local farmer, Joshua Guerin).

Morristown NHP is located on the border between the Northeastern Highlands and the Northern Piedmont ecoregions and is comprised of 1,685 acres distributed across 4 geographically separate units. Washington's Headquarters occupies 10 acres, the Fort Nonsense Unit occupies 35 acres, the Jockey Hollow Encampment, the largest unit, occupies 1,320 acres, and the New Jersey Brigade Unit occupies 321 acres (Fig. A.10). The vegetation of the park is distributed across these units and is dominated by a mix of mowed fields, orchards, planted gardens, and forest stands (Fig. A.11). Changing land use patterns have dramatically altered the character of the local area from farmed or hardwood forested areas intersected by streams to low density residential development, expanding networks of roads, commercial development and recreational development. More than half a million visitors use the park in a year. The park is 80% forest, 10% wetlands and 5% fields.

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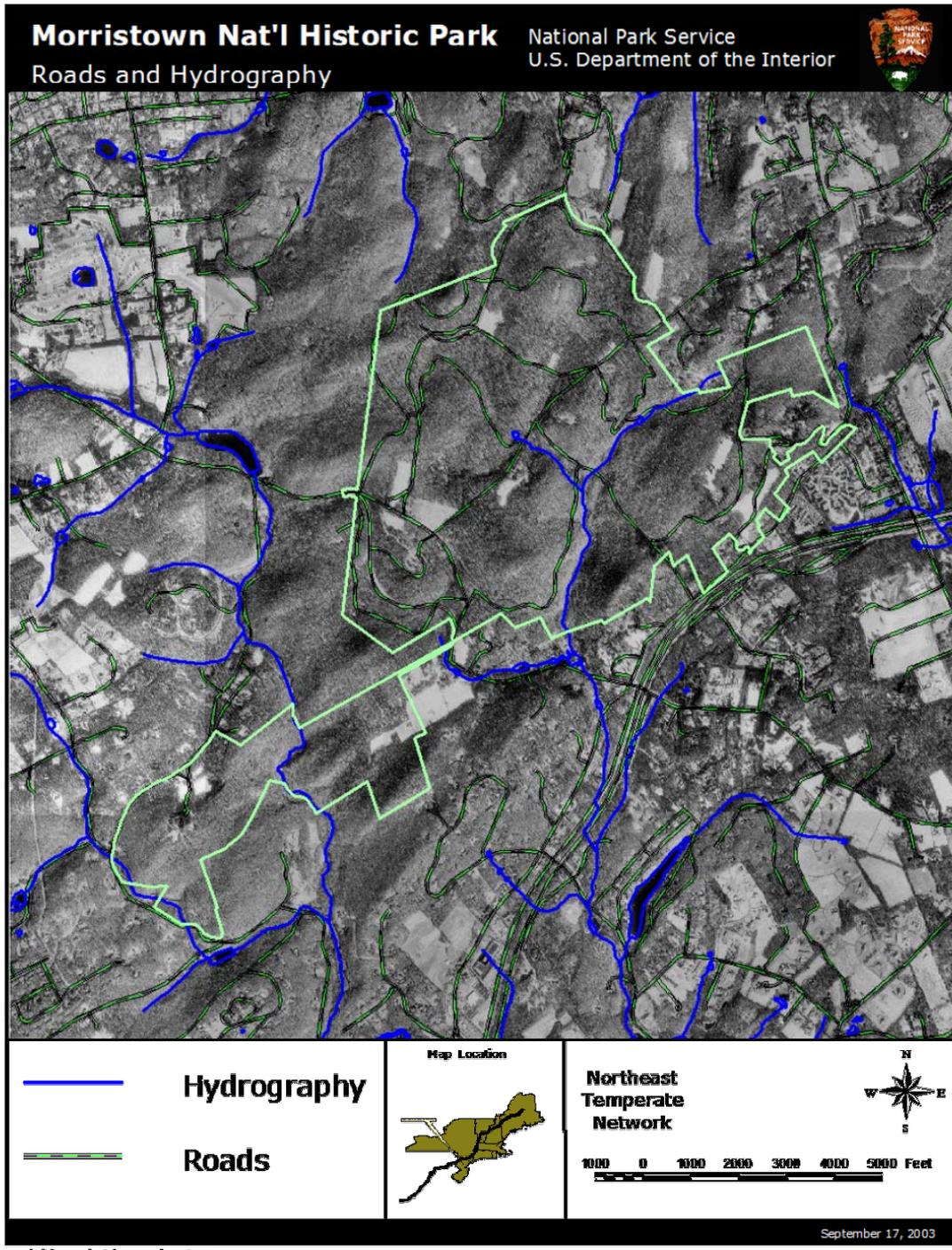


Figure A.10. Hydrography, roads and Morristown NHP boundary (Fort Nonsense Unit not shown)

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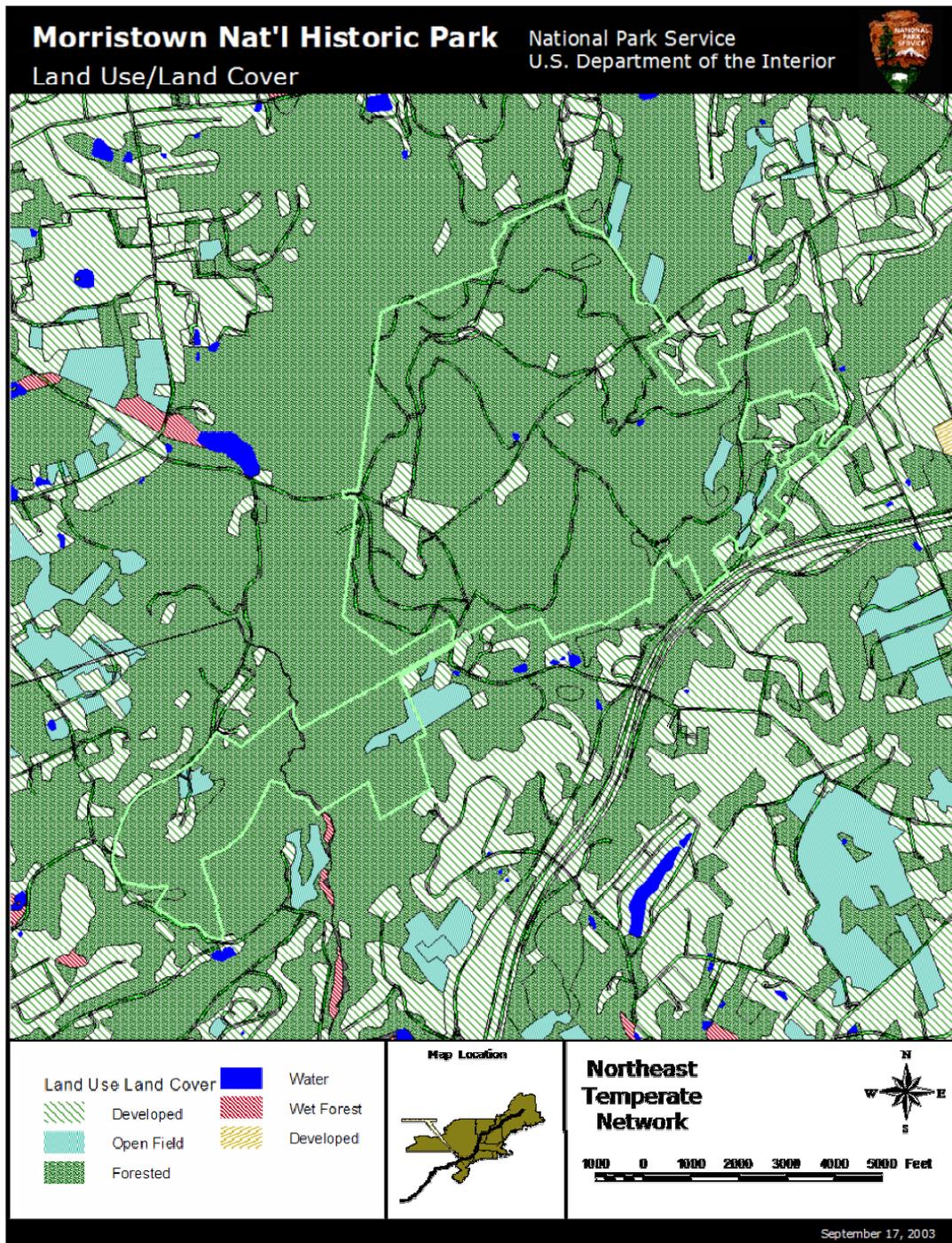


Figure A.11. Basic land cover types for Morristown NHP.

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Roosevelt-Vanderbilt National Historical Sites (ROVA, New York)

Roosevelt-Vanderbilt National Historic Sites consists of three sites in Hyde Park, New York, totaling 682 acres. The sites are within three miles of each other, and are located in western Dutchess County in the town of Hyde Park (Fig. A.12). The purposes of the park are to (a) "to explain the significance of these wealthy Americans and the era they represent in the economic, sociological, and cultural history of the United States," (b) "to let present and future generations know what mansion-living was like . . .", and (c) "to illustrate a phase of man's relationship with his environment."

Roosevelt-Vanderbilt NHS hosts a broad array of natural resources located in the Eastern Great Lakes and Hudson Lowlands ecoregion. Both the Home of F.D.R. NHS and Vanderbilt Mansion NHS border on the Hudson River, a freshwater estuary until it reaches a dam at Troy, New York 75 miles to the north. The presence of the river brings a marine influence far inland, resulting in unique plant communities and animal species uncommon or lacking in eastern Dutchess County.

The parks include almost 500 acres and have about 500,000 visitors per year. The lands are primarily (55%) forested and include almost 30% wetlands (open water, Hudson River and freshwater tidal marshes). Regionally significant herp populations are found there (16 amphibian and 15 reptile species documented including State Threatened Blanding's turtle (*Emydoidea blandingii*); and plants (- Rare northern population of prickly pear cactus -*Opuntia humiifusa*). The landscape at the Vanderbilt site is nationally significant. Significant threats from exotic species are affecting natural and cultural landscapes, especially Japanese barberry, Japanese knotweed, garlic mustard, tree-of heaven, and black locust. The damming of Fall-Kill Creek by the Roosevelt family in 1925 created an extensive wetlands complex at Eleanor Roosevelt NHS, creating important habitat for many wildlife species including the State-threatened Blanding's Turtle. A series of permanent and seasonal woodland ponds also occur on the site, as well as mature second-growth hardwood forest, numerous rock outcrops, a sphagnum swamp, and a wet sedge meadow. Approximately 4.4 miles of streams, 14 acres of permanent ponds, 40 acres of non-tidal wetlands, and numerous small, unmapped vernal pools and intermittent stream are found in the park. A 25 acre tidal marsh lies between the Home of Franklin D. Roosevelt NHS and the Hudson River (Fig. A.13).

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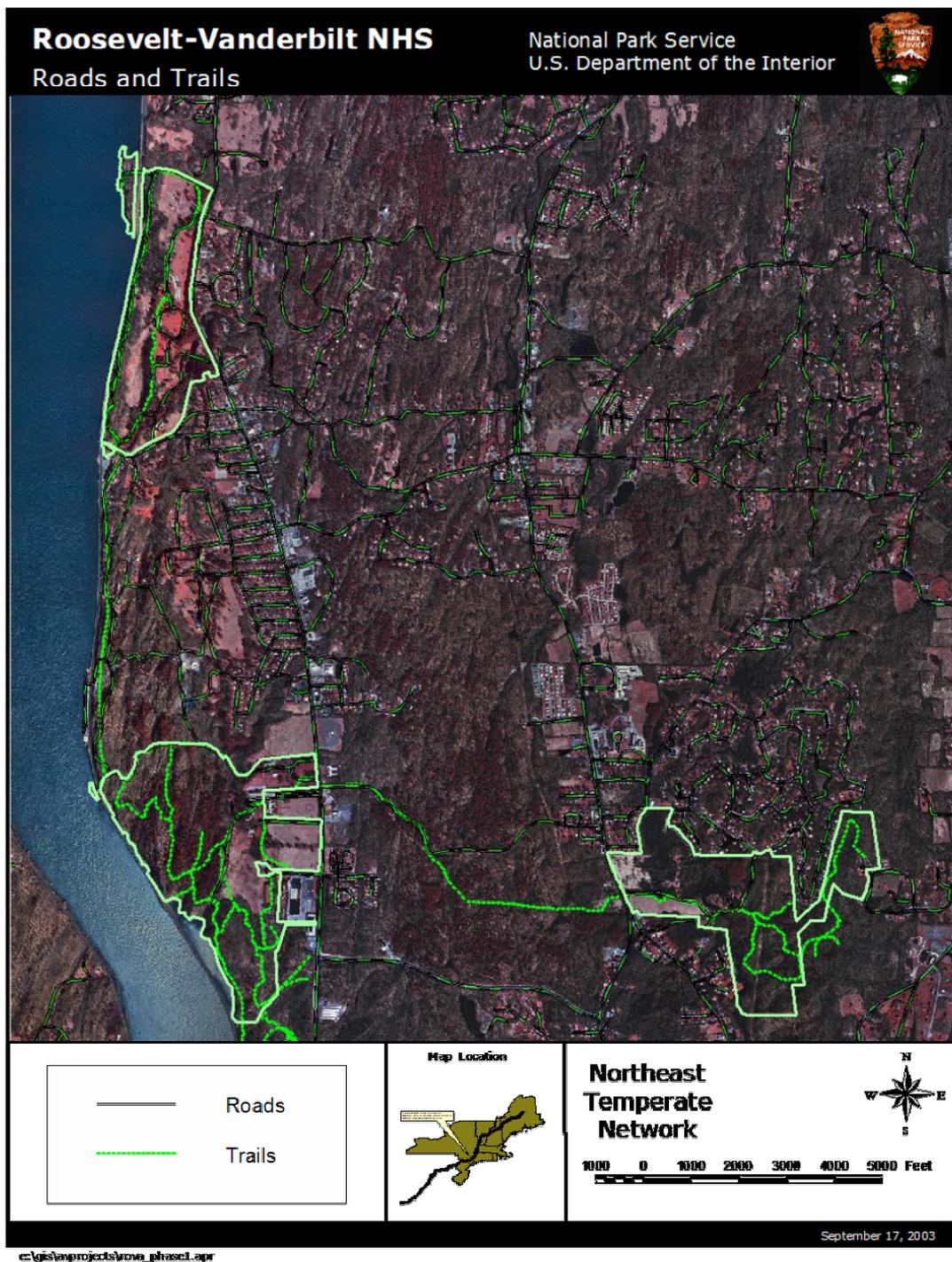


Figure A.12. Road and trails at Roosevelt-Vanderbilt NHS.

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Saint-Gaudens National Historic Site (SAGA, New Hampshire)

Saint-Gaudens National Historic Site consists of 148 acres including the home, gardens and studios of Augustus Saint-Gaudens (1848-1907), one of America's foremost sculptors. This was his summer residence from 1885-1897, and his permanent home from 1900 until his death in 1907. Saint-Gaudens National Historic Site was formally established in 1964. Saint-Gaudens lived and worked as an artist in the Cornish Colony from 1885 to 1907 (Cronan, 1981). The park occurs within the Northeastern Highlands ecoregion. This region is primarily dominated by hemlock and hemlock-beech transitional forest with pockets of semi-rich to rich mesic forest. The park borders a strip of rich sugar maple-ash-oak-hickory forest on river terrace slopes. The terrace slopes were formed from lake bottom sediments of the former glacial Lake Hitchcock along the Connecticut River Valley. Much of the site's 150 acres is on the lower slopes next to the river bottom and is covered with a coniferous and mixed deciduous forest (Gilman, 1997).

Natural resource inventories in 1980, 1986 and 1994 documented many vascular plant and vertebrate species except birds. Management of the cultural landscape at Saint-Gaudens is an ongoing task and some natural resources may be influenced by such action. A long-term USFS forest health monitoring program station operates in the park. The park is experiencing a decline in white ash and near extirpation of butternut. Hemlock Woolly Adelgid poses a potential threat to forest resources. There has been encroachment into the forest of exotic tree species. Proliferation of purple loosestrife and potential introduction of other exotics are management concerns with regard to the park's wetlands. The park supports a diverse herp community and is developing long-term monitoring protocols and vernal pool protection strategies.

Freshwater bodies inside the park boundaries include Blow-Me-Down Brook, Blow-Me-Up Brook, Blow-Me-Down Pond, wetlands surrounding Blow-Me-Down Pond, and a farm Pond (Figs. A.14 and A.15). Roughly half of the park is bordered by stream and pond habitats. Blow-Me-Up Brook winds along the northern edge of the property through steep ravines before it merges with the larger Blow-Me-Down Brook which then flows into Blow-Me-Down Pond. Both Blow-Me-Down Pond and the farm pond are manmade and have impoundments at their outlets. Blow-Me-Down Pond is 5-acre body of water and water depths are up to 7-8 ft by the dam and average 3.8 ft over the pond as a whole

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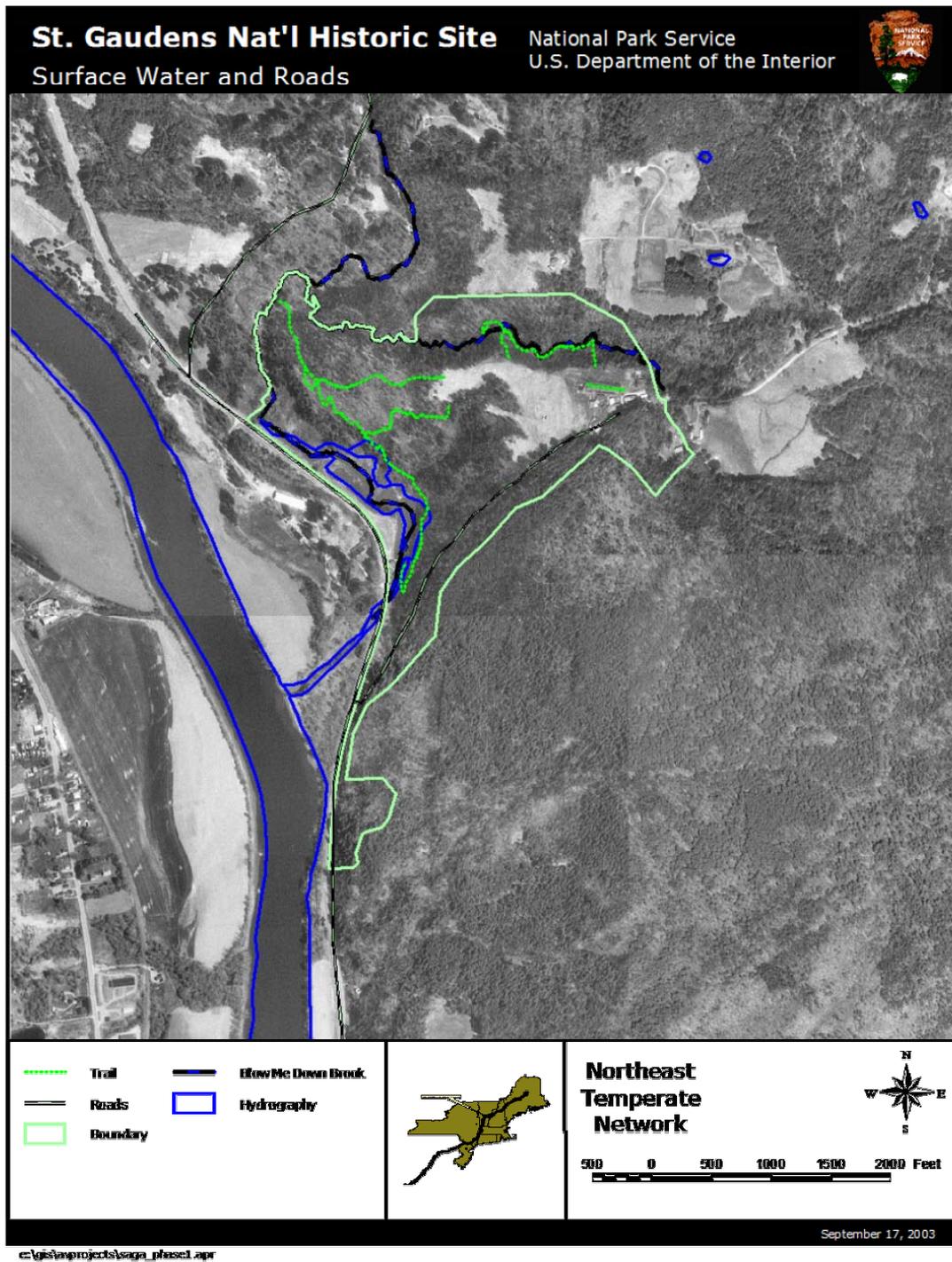


Figure A.14. Surface water, roads, and trails at Saint Gaudens NHP.

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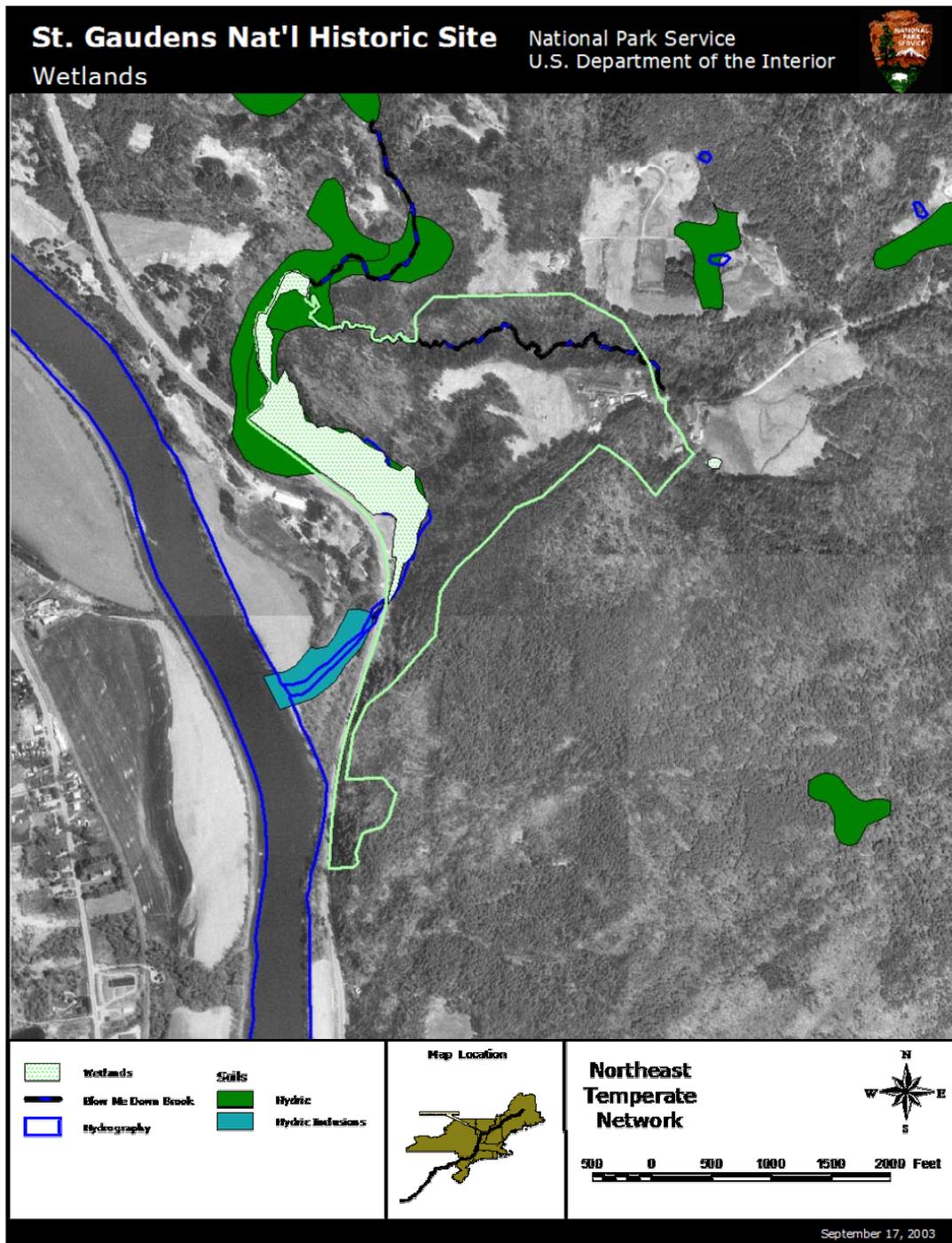


Figure A.15. Wetlands at Saint Gaudens NHP.

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Saratoga National Historical Park (SARA, New York)

Site of the first significant American military victory during the Revolution, the Battles of Saratoga rank among the fifteen most decisive battles in world history. Here in 1777 American forces met, defeated and forced a major British army to surrender, an event which led France to recognize the independence of the United States and enter the war as a decisive military ally of the struggling Americans. The Battlefield was made part of the National Park System in 1938 when Saratoga National Historical Park was authorized. Saratoga National Historical Park preserves and protects the battlefield and the sites associated with the 1777 surrender of British forces at Saratoga, which was a decisive event in the winning of American independence, and interprets these and other sites, events, and people related to the military campaigns in the Champlain-Hudson and Mohawk valleys.

The Park, located in the Eastern Great Lakes and Hudson Lowlands, comprises three separate units; the 4 square mile Battlefield in Stillwater (Fig. A.16), New York, the General Philip Schuyler House eight miles north in Schuylerville and the Saratoga Monument in the nearby village of Victory. Saratoga is near the Adirondack Mountain region where the influence of northern mountain climate is manifested by cool summers and relatively long cold winters. Snow often covers the ground from November through March. The majority of the park consists of the Battlefield Unit which lies on rolling hills rising from the alluvial floodplain along the Hudson river. Elevations range from 26 m above sea level along the river to 124 m at the top of Fraser Hill. Numerous glacial ridges and ravines drain east into the Hudson River. A relatively low but steep escarpment marks the boundary between the hills and the alluvial floodplain of the Hudson River. Forests cover the largest percentage of park lands, comprising 2145 acres (Fig. A.17). Grasslands comprise 800 acres of the park and are dominated by grasses and forbs and contain the largest number of species in the park (Fig. A.17). These are maintained through prescribed fire and mowing (Stalter et al., 1993) (Fig. A.18). Brush/shrub areas (416 acres) and wetlands (45 acres) make up the rest of the park landscape. The Hudson River floodplain, streams and wet meadows support unique habitats within and around the park. Two sedges are state-listed as threatened species or species of special concern, in addition to an iris (blue-eyed grass), running pine, and woodland agrimonia. Wildlife species typical for the region include the white-tailed deer, eastern coyote, eastern wild turkey, eastern meadowlark, northern harrier, snapping turtle, American toad, and meadow vole. Of the wildlife species known to occupy the park, 23 bird species are either federally or state listed as endangered, threatened, or of special concern. Vegetation plays a prominent role in the interpretation of the park. The historic configuration of the fields and forests at Saratoga was important in the overall battle strategy of 1777. The sequence of the park's land acquisition and land use history has produced a mosaic of old field, shrub, and forest communities. Current vegetation is considered an integral component of the cultural landscape.

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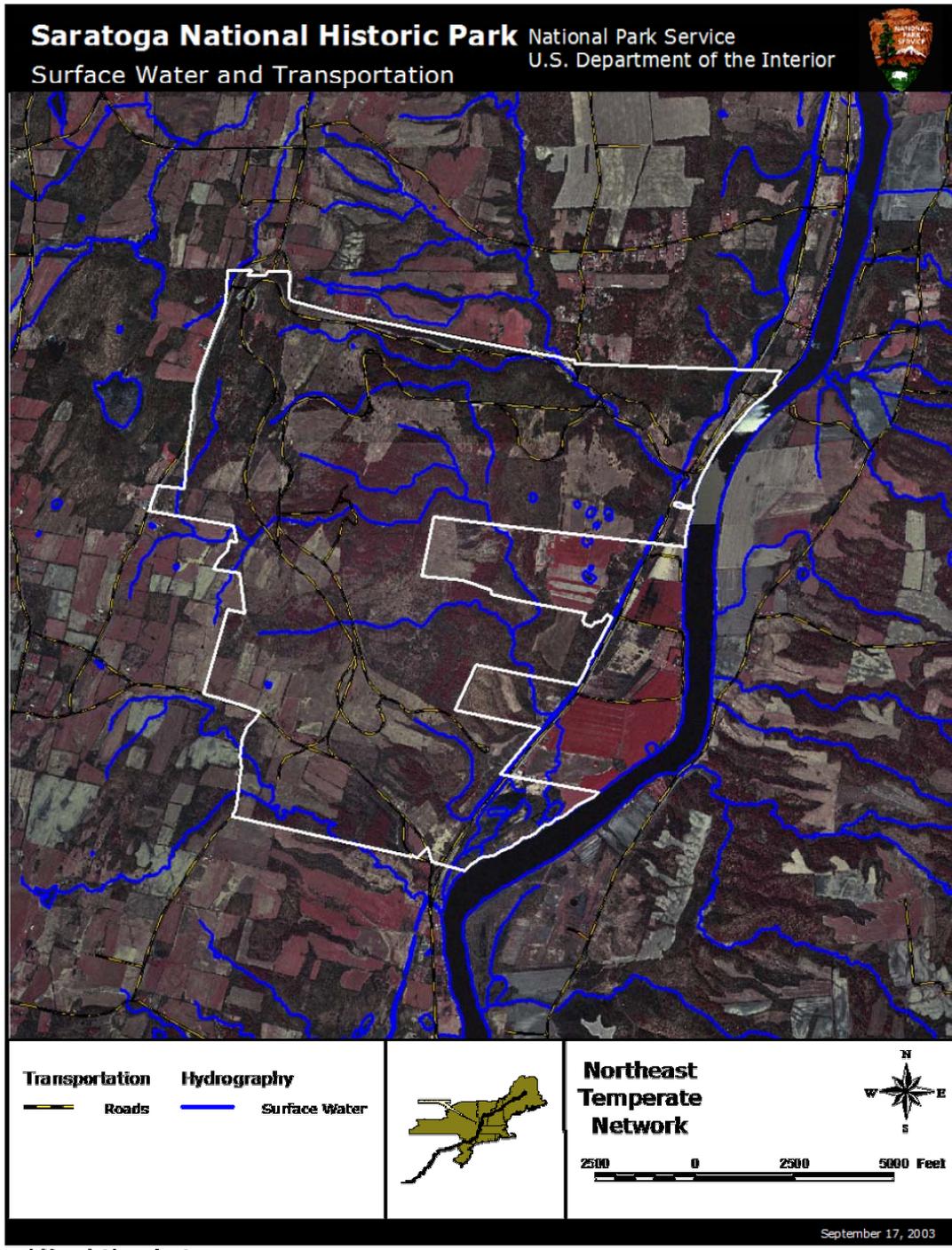


Figure A.16. Surface water and roads at the main battle field unit of Saratoga NHP.

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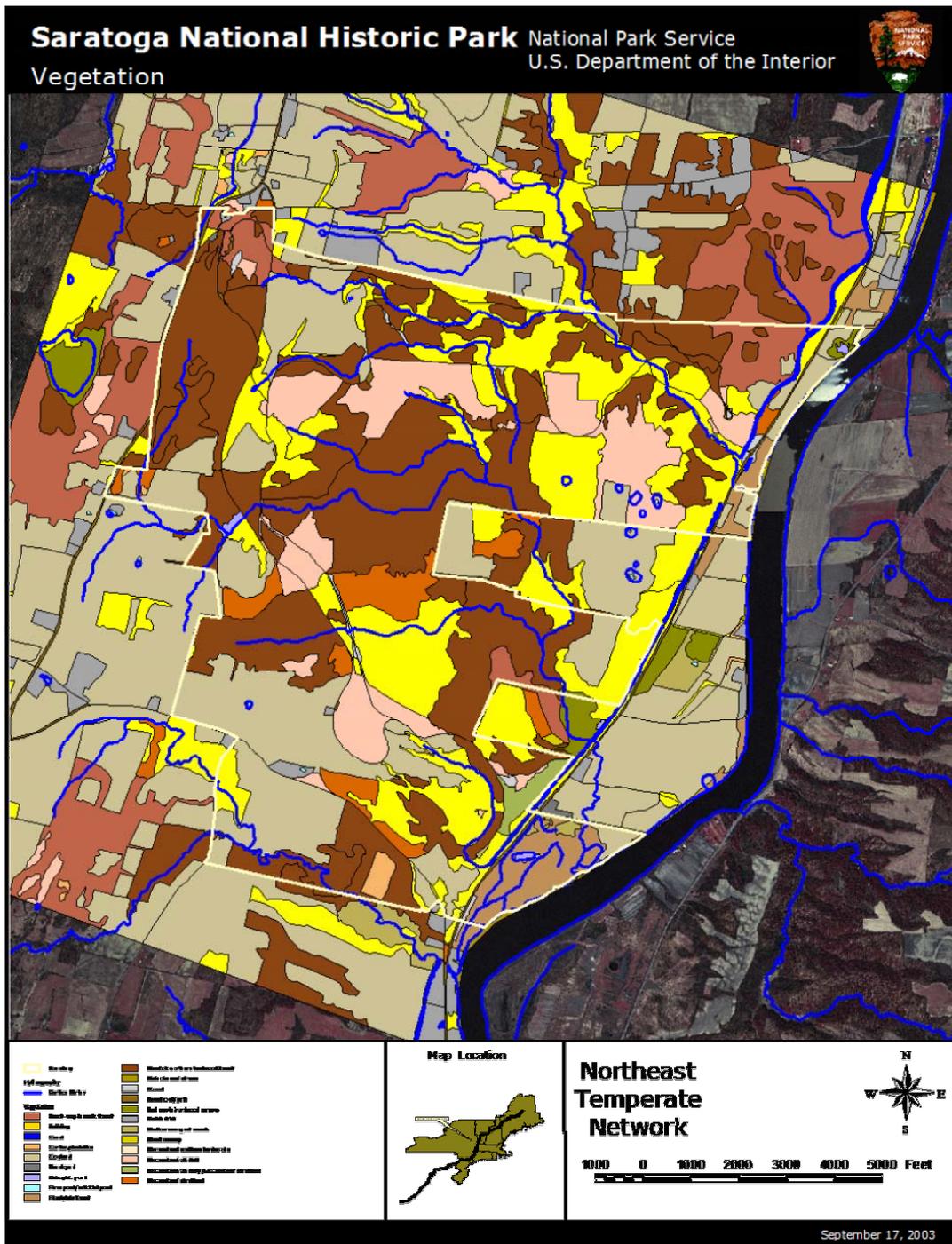


Figure A.17. Vegetation cover at Saratoga NHP.

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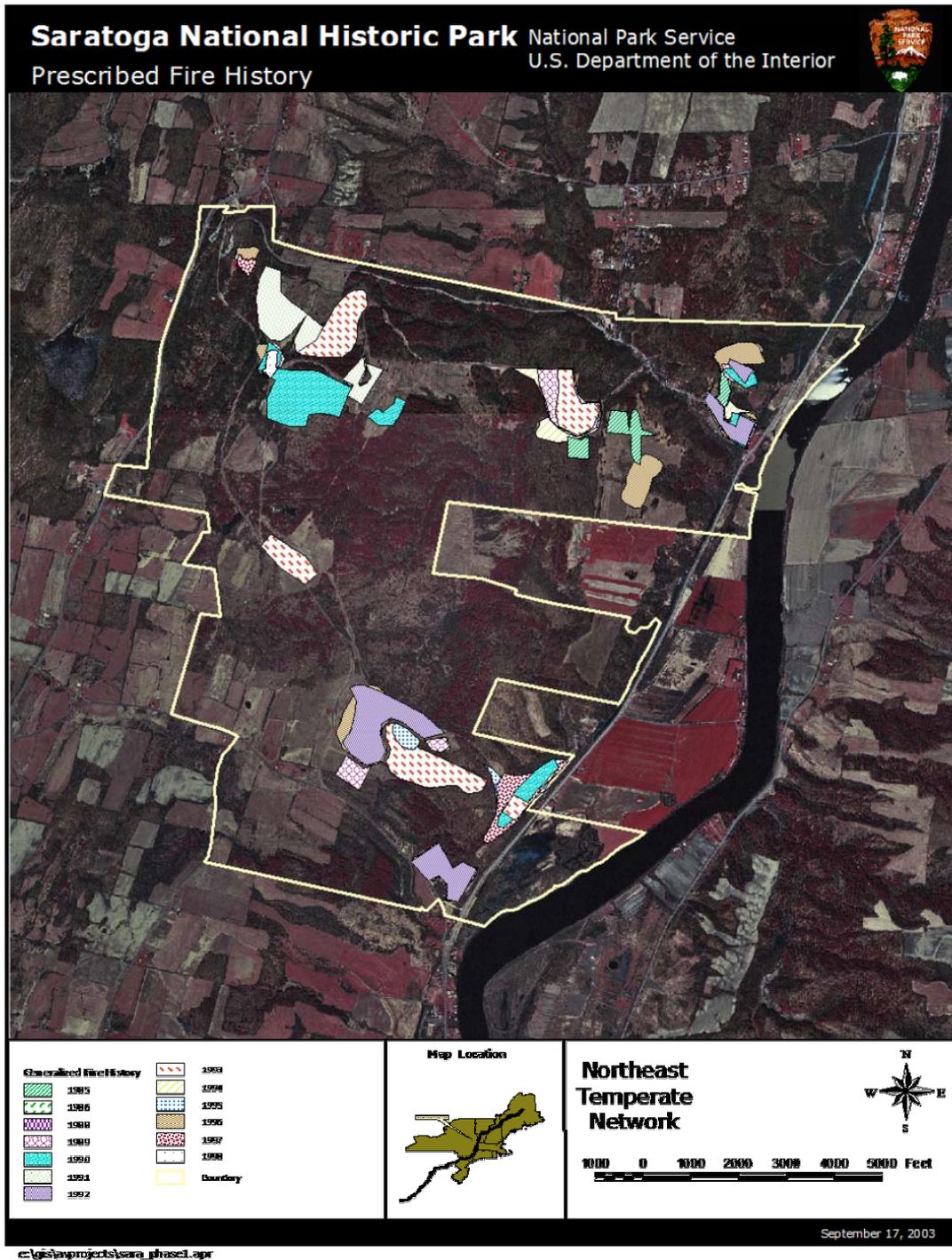


Figure A.18. Prescribed fire management history at Saratoga NHP.

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Saugus Iron Works National Historic Site (SAIR, Massachusetts)

Saugus Iron Works National Historic Site, established 1968, is 9 acres located on the Saugus River in the Northeastern Coastal Zone ecoregion (Fig. A.19). The Park hosts 25,000 annual visitors. Prominent landscape features were dramatically altered in 1957 when a breached dam caused a massive in-fill of silt to the site's harbor. A wetland marsh, dominated by invasive species, has since grown up around the now channeled river, obscuring the reconstructed harbor and its role in the original iron making operation. Noteworthy natural resources include the floodplain and wetland marsh, the east terrace riparian woodlands and river, the fishery, both smelt and eel are known (Fig. A.20). A total of 160 plants species are reported for the site. Exotic species are an issue for maintaining the marsh and the cultural landscape. The invading plants dominate SAIR's brackish marsh and adjoining areas. The tallest and most invasive is Common Reed (*Phragmites australis*) but Purple Loosestrife (*Lythrum salicaria*), Japanese Knotweed (*Polygonum cuspidatum*), Multiflora rose (*Rosa multiflora*), and Curly Pondweed (*Potamogeton crispus*) are also a problem.

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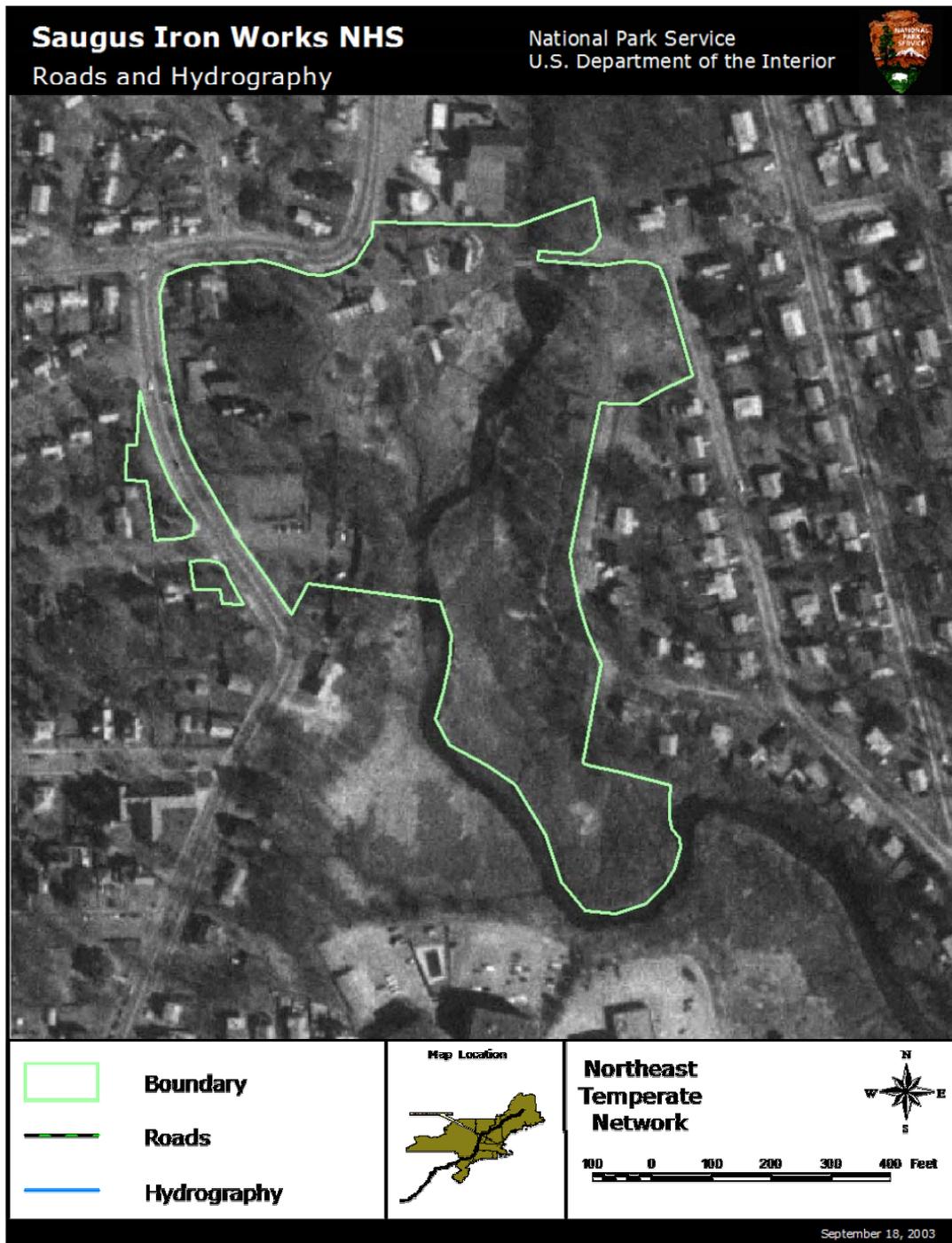


Figure A.19. Boundary, roads, and hydrography of Saugus Iron Works NHP.

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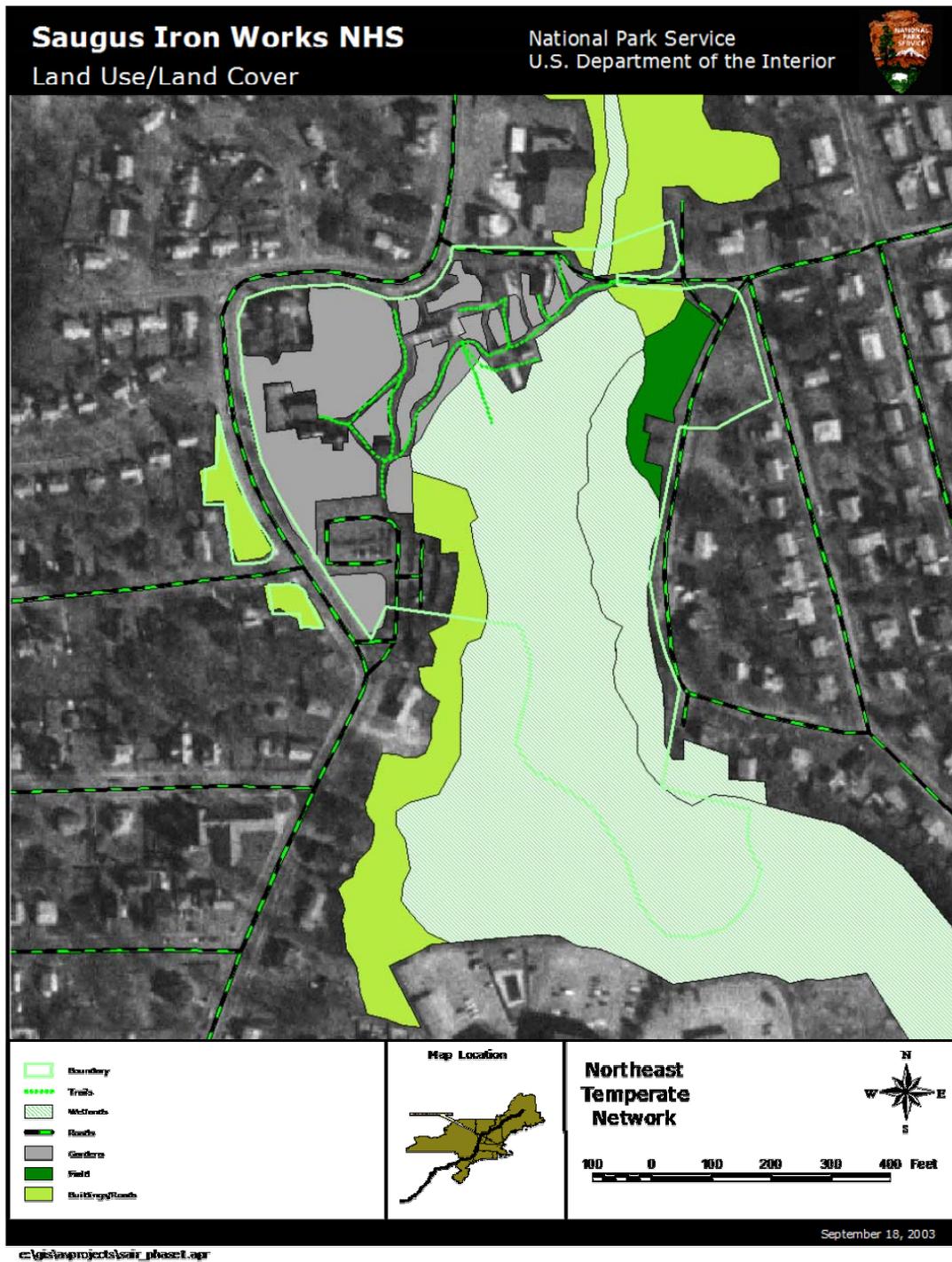


Figure A.20. Basic land cover types of Saugus Iron Works NHP.

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Weir Farm National Historic Site (WEFA, Connecticut)

Weir Farm National Historical Park, established in 1990, is one of the last intact landscapes associated with American Impressionism (Fig. A.21). It is located in the Northeastern Coastal Zone ecoregion in the southern part of Connecticut. The park is within 25 miles of the Atlantic coast (Long Island Sound). The park contains a number of wetland complexes, mostly defined as palustrine scrub shrub and forested, but a number of intermittent and ephemeral surface streams also occur on the park. Weir Pond, a 3.7 acre, stream and ground water fed, manmade pond is a prominent component of the Parks landscape (Fig. A.22). The Weir Pond Dam, built to create the pond 1896, has become an important management issue in terms of both cultural and natural resources. The most recent inspection of the earthen dam suggests that it may fail if left in its current state (Fox and Zubricki 1995). In 1998, the Brooklyn Botanical Garden located five state listed species of plants at WEFA Farm, but further distribution and abundance information needs to be gathered for these species. A number of invasive species are of some concern as well at the site, including Black Swallowort (*Vincetoxicum nigrum*), Asiatic bittersweet (*Celastrus orbiculatus*), Japanese Barberry (*Berberis thunbergii*) and Garlic Mustard (*Allaria officinalis*). These species are becoming a serious threat to many natural communities (An ecological Survey of Weir Farm, 1991).

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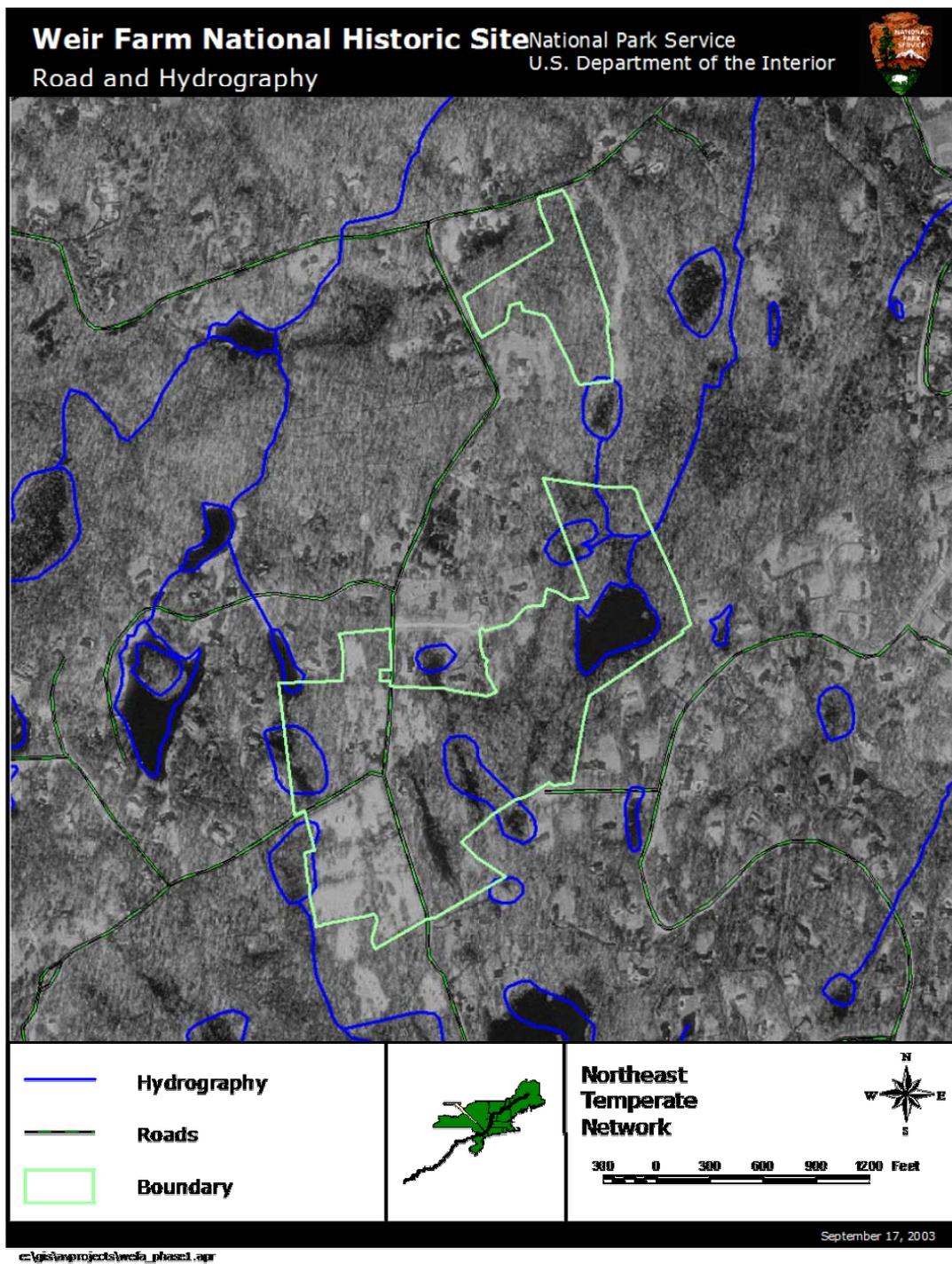


Figure A.21. Boundary, hydrography, and roads at Weir Farm NHP.

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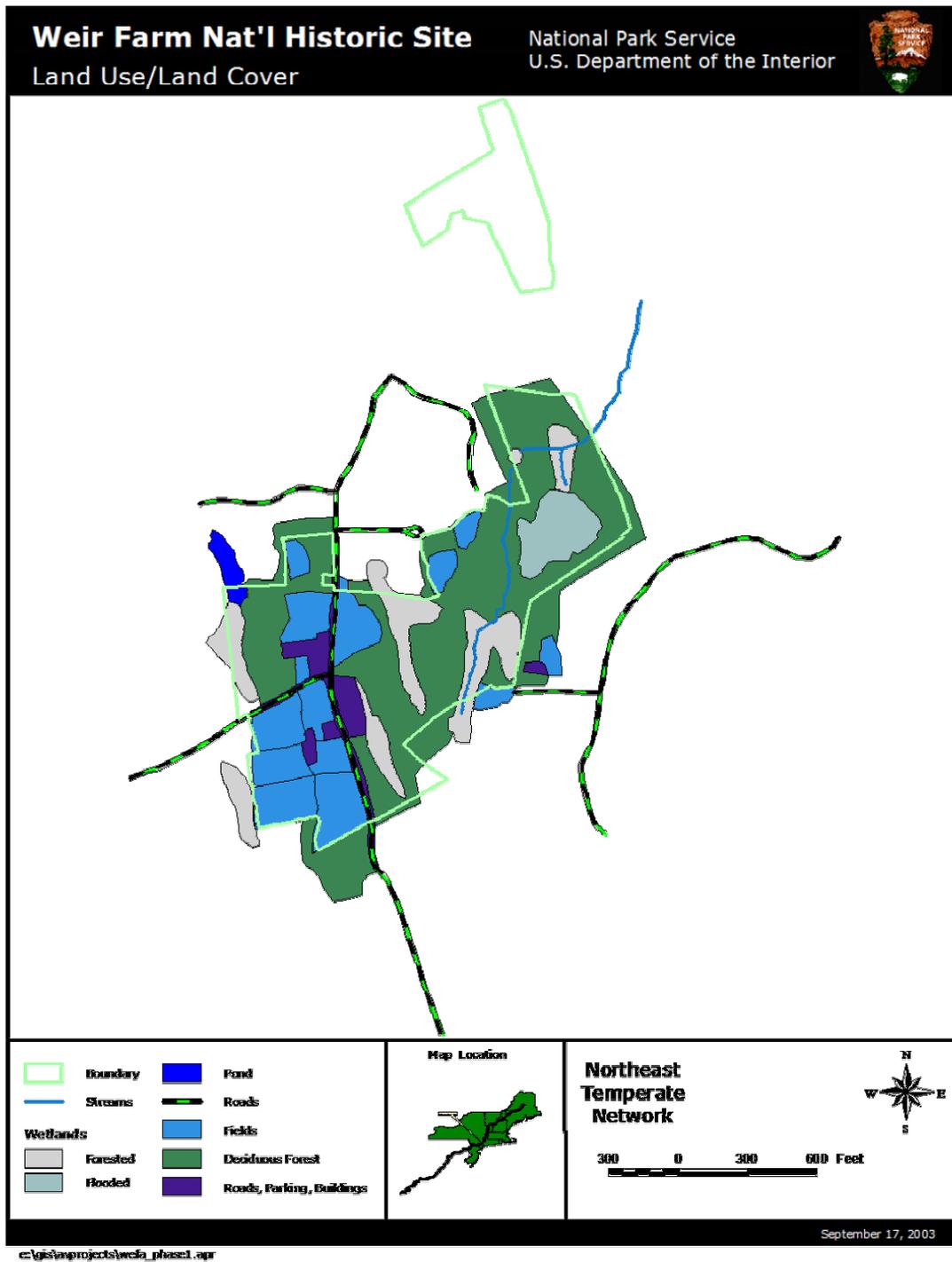


Figure A.22. Basic land cover at Weir Farm NHP.