

BATSTO

COUNTY: Atlantic; Burlington.

MUNICIPALITY: Atlantic County: Hammonton, Mullica, Townships. Burlington County: Shamong, Washington Townships.

PHYSIOGRAPHIC PROVINCE: Outer Coastal Plain.

QUADRANGLES: Atsion, Hammonton, Indian Mills, Jenkins.

COORDINATES: Central Point: 39° 42'00" lat.; 74° 41' 30" long.

ACREAGE: Approximately 16,000 acres (area of excluded inholdings has not been subtracted from this figure).

OWNERSHIP: The site is almost entirely owned by the State of New Jersey and lies within Wharton State Forest (administered by the Division of Parks and Forestry, N.J. Dept. of Environmental Protection). Private inholdings include agricultural lands, campgrounds, residences, a railroad right-of-way. Inholdings which are highly developed or under active agricultural use are excluded. The railroad right-of-way is included.

LAND USE: Lying entirely within Wharton State Forest, use of this large tract is primarily recreation and forest resource utilization. Recreational activities include hiking, canoeing, hunting, camping, botanizing, fishing, birdwatching, picnicing and other uses. The Mullica River from Atsion to Pleasant Mills has been designated a wild river under the State Wild and Scenic Rivers System. The Batsto and Mullica Rivers experience heavy use by canoeists. Camping is allowed by permit in designated campsites, however such facilities cannot be accessed by vehicle. Sand roads form the entire eastern boundary from Hampton Furnace south to Batsto and numerous other sand roads occur throughout the site. These roads may be used by 4-wheel and in some

cases, 2-wheel drive vehicles. No paved roads occur within the area. The southern boundary west of the Mullica River is formed by the Nescochague Creek and Great Swamp Brook, and includes a 300-foot buffer zone beyond these creek beds. Route 206, a two-lane highway which forms a major north-south access through southern N.J., borders the site to the west. The abandoned Central Railroad of New Jersey traverses the northern portion of the tract from Atsion to the Carranza Memorial. Several bridges and a lookout tower are in active use. Current forest management practices include tree harvesting and controlled burning.

NATURAL RESOURCE ELEMENTS:

1. Plant Community Types: Batsto contains representatives of every major community type within the Pine Barrens including large contiguous tracts of several lowland and upland types. In addition, representatives of less widespread communities such as savannas occur within Batsto. The following summary of community structure and composition was obtained from vegetation maps of the Pinelands (Andropogon Associates, 1980), and existing descriptions by Andropogon Associates (1980) and McCormick (1979).

Lowland Types:

- a. Pitch Pine Lowland Forest - Large tracts of this community occupy an area south of Atsion center and wetland areas in Great Swamp along the Sleeper and Gun Branches of the Mullica River. This community is dominated by an almost complete canopy of pitch pine (Pinus rigida), an understory and shrub layer of red maple (Acer rubrum), blackgum (Nyssa sylvatica), black huckleberry (Gaylussacia baccata), dangleberry (G. frondosa) and sleep laurel (Kalmia angustifolia), and a ground cover of bracken fern (Pteridium aquilinum), wintergreen (Gaultheria procumbens) and various herbs including sphagnum. Extensive pine forests south of Atsion center, sometimes called the Atsion Ore Bogs, burned completely in a severe 1983 fire, revealing a diverse mosaic of vegetation in the following year.
- b. Cedar Swamp - One of the most extensive tracts of cedar in the Pinelands occurs at Great Swamp lying between the Mullica River and Sleeper Branch. Atlantic white cedar (Chamaecyparis thyoides) dominates the dense canopy which also contains

- red maple, blackgum, and sweetbay (Magnolia virginiana). The shrub layer is mostly ericaceous including dangleberry, highbush blueberry (Vaccinium corymbosum), sweet pepperbush (Clethra alnifolia), bayberry (Myrica pensylvanica) and others. The forest floor is mostly carpeted with sphagnum mosses but also supports such acid-loving herbs as sundews (Drosera spp.) pitcher plants (Sarracenia purpurea) and curly grass fern (Schizaea pusilla). Smaller more linear areas of cedar are found along the rivers and streams throughout Batsto.
- c. Hardwood Swamp - This forest community occurs in strips and pockets along the Mullica and Batsto Rivers, Nescochague Creek and other creeks and streams. Hardwood swamps are diverse in composition but are mostly dominated by red maple with individuals of blackgum, sweetbay, Atlantic white cedar, sassafras (Sassafras albidum), gray birch (Betula populifolia) and pitch pine also present. Shrub and herb strata are similar in composition to that of cedar swamps.
- d. Bog - Boggy areas of varying composition occur throughout Batsto, most of which are abandoned cranberry farms. These lowland areas may contain open water or may be dominated by shrubs including leatherleaf (Chamaedaphne calyculata), highbush blueberry, sheep laurel, swamp azalea (Rhododendron viscosum), sweet pepperbush, and staggerbush (Lyonia mariana). Peat mosses provide the primary ground cover which also contains pitcher plants, sundews, sedges, rushes, pipeworts and other herbaceous forms.
- e. Savanna - This local term is used to describe herbaceous communities supporting mostly grasses, sedges and rushes occurring in intermittent stream channels and other seasonally inundated areas flanking the streams and creeks at Batsto. This relatively rare community type of the Pinelands is known to support numerous associated rare plant species.

Upland Types:

- a. Pine-Oak Forest - This forest occupies almost the entire upland corridor lying between the Mullica and Batsto Rivers and a large tract east of Quaker Bridge and Lower Forge. Although several variations of this widespread fire adapted community exist within the Pinelands, the most common type is dominated by pitch pine and to a lesser extent, blackjack oak (Quercus marilandica) with scattered individuals of post,

black and scarlet oak (Q. stellata, Q. velutina), Q. coccinea). Typical shrubs include black huckleberry and lowbush blueberry (Vaccinium vacillans). The herbaceous layer is mostly sparse containing bracken fern, wintergreen and various mosses and lichens.

- b. Oak-Pine Forest - Relatively large tracts of oak-pine lie north of the lookout tower at Batsto and also between the Great Swamp Branch and Albertson Brook. The canopy of this forest is generally dominated by large oaks including black and chestnut (Q. prinus) oak, with pitch pine of lesser importance. Understory, shrub and herbaceous layers generally resemble that of the pine-oak type.
2. Wildlife: Although one could reasonably expect Batsto to contain those wildlife species which typify representative Pine Barren vegetative community types within Batsto, specific information on wildlife within the borders of this site is currently not available.
3. Rare Plants: Batsto is known to contain an extremely large number of plant species rare on both the national and state levels. The majority of occurrences of these species may be found in the myriad of wetland habitat types along sections of the Batsto and Mullica Rivers and their tributaries. The following list, obtained from reports by Caiazza and Fairbrothers (1980), Snyder (1983) and Stasz (1985), includes 17 species which are either currently under Federal review by the U.S. Fish and Wildlife Service or are known or believed to be endangered/threatened throughout their range in the U.S. All of these species are threatened in New Jersey and, with the exception of Schwalbea americana all are currently known to be extant at Batsto. Five of these species were first collected and described (type locality) from the Atsion area.

<u>Breweria pickeringii</u>	Pickering's Morning-glory
var. <u>caesariensis</u>	
<u>Calamovilfa brevipilis</u>	Pine Barren Reed Grass
<u>Carex barrattii</u>	Barratt's Sedge
<u>Eriocaulon parkeri</u>	Parker's Pipewort
<u>Eupatorium resinosum</u>	Pine Barren Boneset
<u>Gentiana autumnalis</u>	Pine Barren Gentian
<u>Juncus caesariensis</u>	New Jersey Rush
<u>Lobelia canbyi</u>	Canby's Lobelia
<u>Lygodium palmatum</u>	Climbing Fern
<u>Muhlenbergia torreyana</u>	Torrey's Smoke-grass
<u>Narthecium americanum</u>	Bog Asphodel
<u>Rhynchospora knieskernii</u>	Knieskern's Beaked-rush
<u>Rhynchospora pallida</u>	Pale Beaked-rush
<u>Schizaea pusilla</u>	Curly Grass Fern
<u>Schwalbea americana</u>	Chaffseed

Scirpus longii
Uvularia pudica
 var. nitida

Long's Wool-grass
 Pine Barren Bellwort

In addition to the above, numerous other species currently threatened within New Jersey, although more common outside our borders, occur at Batsto. Included among these are Eriophorum tenellum (Few-nerved Cotton Grass), Rhynchospora oligantha (Few-flowered beaked-rush) and Xyris caroliniana (Yellow-eyed Grass) which are virtually restricted to the Batsto tract within New Jersey.

4. Rare Wildlife: Zappalorti (1982) has identified local areas within Batsto as supporting significant populations of the state endangered corn snake (Elaphe g. guttata) and northern pine snake (Pituophis m. melanoleucus) and the State threatened timber rattlesnake (Crotalus horridus) and Pine Barrens treefrog (Hyla andersonii). The most important breeding and nesting habitat for these species appears to be along the abandoned Central Railroad of New Jersey right-of-way, although local populations occur throughout Wharton State Forest where suitable habitat exists. Information on other rare wildlife which use Batsto is currently lacking although the abundant natural habitat makes additional occurrences likely.

Three globally rare moth species occur within the site. These include Spartinophaga carterae, Agrotis buchholzi (both New Jersey endemics), and Datana raniceps. For two of these species, the best known global occurrence is at Atsion. Discovery of additional rare invertebrate occurrences is likely.

5. Geological/Topographic Features: Batsto is completely underlain by Cohansey sand which is composed chiefly of quartz sand containing local beds of clay and gravel. Soils series range from poorly drained types of river corridors, swamps and lowlands (Muck, Alluvial land, Berryland sand, Atsion sand) to moderately and well-drained types such as Klej, Lakehurst, Lakewood, Evesboro and Woodmansie sands of more mesic and upland sites. Elevations vary from approximately 10 to 80 feet above mean sea level and the topography is flat to gently rolling. Batsto lies within the Atlantic drainage basin, Batsto, Atsion and Nescochague sub-basins, and is netted with numerous streams and creeks which eventually drain into the Mullica River.

PROTECTABILITY:

The entire Batsto site is enclosed within Wharton State Forest and is bounded by roads and river corridors facilitating its future management to protect specific features of concern. The Wharton office is located

at Batslo and a satellite office exists at Atsion. Future management techniques must address the specific biotic requirements of the species and communities of concern to result in effective perpetuation and possible enhancement of these features. Particular attention must be paid to the use of fire management and the type and level of human use permitted, particularly along the river courses.

REASON FOR INCLUSION OF AREA IN NATURAL AREAS REGISTER:

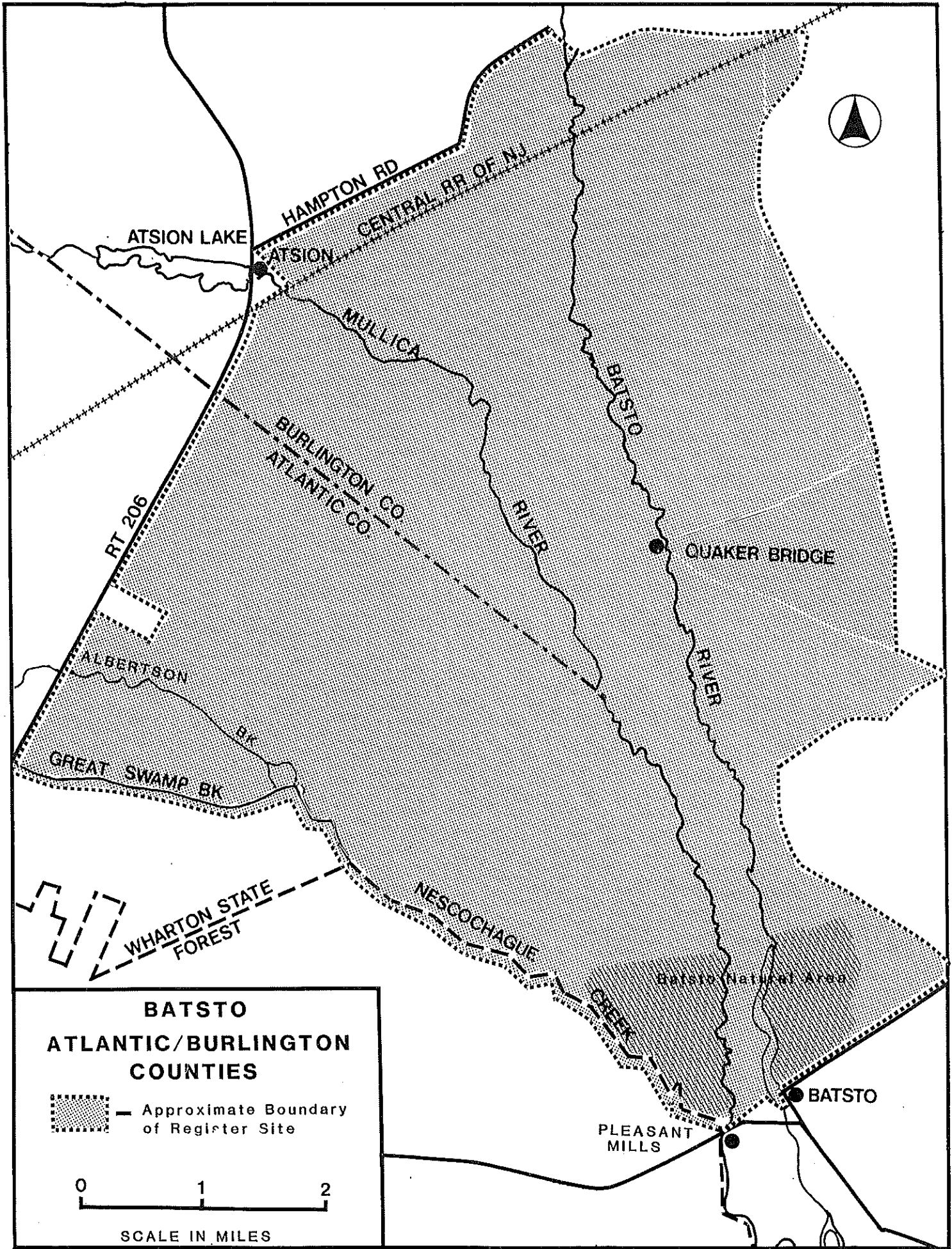
Batslo satisfies at least two of four standards for inclusion of sites within the Register of Natural Areas (fulfillment of only one of the standards is sufficient for a site to be considered for the Register):

1. Batslo supports an exceptional number of plant species threatened at both the federal and state level and contains populations of four species of wildlife determined to be endangered or threatened in New Jersey.
2. Batslo contains relatively large, contiguous and undisturbed representatives of every major Pine Barrens community type.

REFERENCES CITED:

- Andropogon Associates. 1980. Forest vegetation of the Pinelands. Report prepared for the New Jersey Pinelands Commission.
- Caiazza, N. and D. E. Fairbrothers. 1980. Threatened and endangered vascular plant species of the New Jersey Pinelands and their habitats. Report prepared for the New Jersey Pinelands Commission.
- McCormick, J. 1979. The vegetation of the New Jersey Pine Barrens. In: Forman, R.T.T. (ed.) Pine Barrens: Ecosystem and landscape. Academic Press, New York. pp. 229-243.
- Snyder, D.B. 1983. New Jersey's threatened plant species. Unpublished report prepared for the New Jersey Department of Environmental Protection.
- Stasz, J. 1985. (Untitled). Unpublished report prepared for the New Jersey Department of Environmental Protection.
- Zappalorti, R. T. and E. W. Johnson. 1982. A herpetological survey of Wharton, Lebanon and Belleplain State Forests, with special notes on management of critical habitat.

Report by Herpetological Associates, Inc., Environmental
Consultants, for the New Jersey Department of
Environmental Protection.



**BATSTO
ATLANTIC/BURLINGTON
COUNTIES**

— Approximate Boundary
of Register Site



SCALE IN MILES