COUNTY: Atlantic; Burlington.


PHYSIOGRAPHIC PROVINCE: Outer Coastal Plain.

QUADRANGLES: Ahsion, 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, picnicking and other uses. The Mullica River from Ahsion 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 Nescocagogue 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), dangleberryl (G. trondesa) 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 corysbogum), sweet pepperbush (Clethra alnifolia), bayberry (Myrica pensylvaniana) and others. The forest floor is mostly carpeted with sphagnum mosses but also supports such acid-loving herbas 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 crocks 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 featherleaf (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 crocks 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
vaccinians). 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 representa-
tive 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 Schwalbae americana all are
currently known to be extant at Batsto. Five of these
species were first collected and described (type
locality) from the Aisian area.

Breweria pickeringii
var. caesariensis
Calamovilia brevifolia
Carex barrantii
Eriocaulon parkeri
Eupatorium resinosum
Genlana autumnalis
Juncus caesariensis
Lobelia canbyi
Lycoodium palatinum
Muhlenbergia torreyana
Narthecium americum
Rhyndospora nestskornii
Rhyndospora pallida
Schizaea pusilla
Schwalbae americana

Pickering's Morning-glory
Pine Barren Reed Grass
Barratt's Sedge
Parker's Pipewort
Pine Barren Boneset
Pine Barren Gentian
New Jersey Rush
Canby's Lobelia
Climbing Fern
Torrey's Smoke-grass
Bog Asphodel
Knieskorn's Beaked-rush
Pale Beaked-rush
Curly Grass Fern
Chaffseed
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 elongatum* (Few-nerved Cotton Grass), *Rhynchospora alpigena* (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 ranaceps*. 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 Cohansay 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 Batsto 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:

Batsto 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. Batsto 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. Batsto contains relatively large, contiguous and undisturbed representatives of every major Pine Barrens community type.

REFERENCES CITED:


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