

## BIRDS OBSERVED IN SPRUCE FLATS – AUDUBON SOCIETY

### HAWKS

BROAD-WINGED, RED-SHOULDERED, SPARROW

### CUCKOOS

YELLOW-BILLED, BLACK-BILLED

### OWLS

BARRED, SCREECH

### WRENS

HOUSE, WINTER, CAROLINA

### WARBLERS

BLACK & WHITE, GOLDEN-WINGED, NASHVILLE, MAGNOLIA, BLACK-THROATED (BLUE AND GREEN), KENTUCKY, BLACKBURNIAN, CANADA, HOODED, CHESTNUT-SIDED, HOODED, BLACKPOLL

### FLYCATCHERS

CRESTED, ACADIAN

### WOODPECKERS

PILEATED, HAIRY, DOWNY

### MISCELLANEOUS

RUBY-THROATED HUMMINGBIRD, YELLOW-SHAFTED FLICKER, YELLOW-BELLIED SAP-SUCKER, RAVEN, EASTERN PHOEBE, RED-EYED VIREO, EASTERN WOOD PEWEE, AMERICAN ROBIN, ROSE-BREADED GROSBEAK, GRAY CATBIRD, WHITE-BREADED NUTHATCH, VEERY,  
BLACK-CAPPED CHICKADEE, CROW, BLUE-GRAY GNATCATCHER, BLUEJAY, RUBY-CROWNED KINGLET, WOOD THRUSH, RUFFED GROUSE, EASTERN BLUEBIRD, CEDAR WAXWING, TUFTED TITMOUSE, SOLITARY VIREO

## SPRUCE FLATS WILDLIFE AREA

Pennsylvania contains about 17 million acres of forestland. Of this total, over two million acres are in the state forest system, which is publicly owned and managed by the Department of Conservation and Natural Resources, Bureau of Forestry. The Forbes State Forest comprises about 60,000 acres located in Westmoreland, Somerset and Fayette Counties.

The *Spruce Flats Wildlife Area*, which covers over 300 acres, is being managed primarily to provide wildlife habitat. Timber may be removed, but only when it is desirable to create openings or brushy areas for wildlife. Hiking trails may be developed, primarily for wildlife viewing. Trees and shrubs may also be planted to provide food and cover for wildlife. The Audubon Society of Western PA has been cooperating with the Bureau of Forestry to determine bird populations in the area, and the effects of creating herbaceous openings on birdlife.

**PARKING IS AVAILABLE AT LAUREL SUMMIT STATE PARK.**

### FOREST DISTRICT HEADQUARTERS

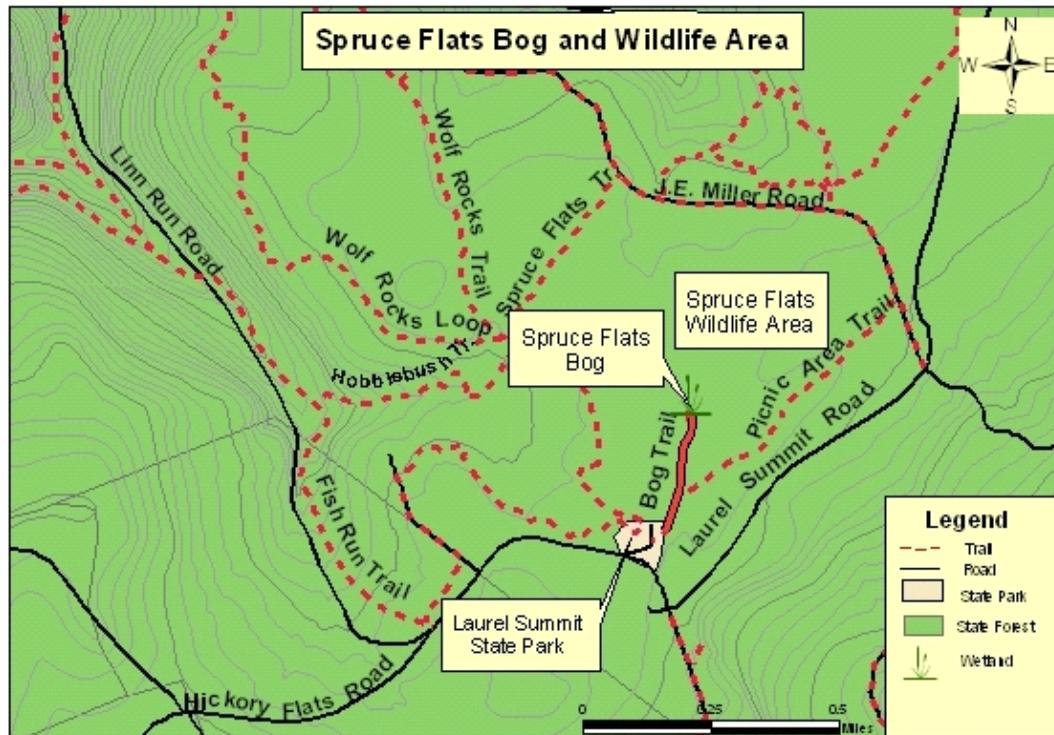
Bureau of Forestry  
Forbes Forest District 4  
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**Emergencies—contact a state forest employee or Dial 911**

# Pennsylvania Bureau of Forestry

## Forbes State Forest

## Spruce Flats Bog and Wildlife Area



Commonwealth of Pennsylvania  
Department of Conservation and Natural Resources  
Bureau of Forestry  
Visit us at — [www.dcnr.state.pa.us](http://www.dcnr.state.pa.us)  
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## Spruce Flats Bog

Spruce Flats Bog is a fascinating area of obscure origin. It is home to unique plants, not seen in this locality since the last ice age. Cranberry, cotton grass, and insect eating plants are found in the bog. Spruce Bog and adjoining Spruce Flats were misnamed. The original forest consisted of dense stands of hemlock. For convenience, all short-needled conifers were called spruce by lumbermen at the turn of the 20th century. The 28 acre bog is a two-minute walk northeast from Laurel Summit State Park. A sign will direct you to the path of the PW&S railroad that traveled across the bog early in the 20th century.

### BOG FORMATION

A bog is a pond formed in clay on impervious bedrock, and contains no stream source. It is conceivable that such formations could occur if upper portions of a stream were pirated by another drainage system. The location on Laurel Ridge, together with the topography, makes this explanation unlikely.

Bogs usually result from glacial activity. At times along the southern-most edge of a glacier, as the ice melts, deposits of rock and soil form impounding basins. Sometimes glaciers gouge deep recesses into bedrock as they thrust forward. In either case, a pond may be formed. Geologic evidence indicates the last (Wisconsin) Glacier did not advance this far south. If Spruce Flats Bog was formed by glacial action, then it must have been initiated by some previous activity associated with the last ice age.

Following formation of a suitable recess, it takes centuries before a bog is stocked with typical organisms, and completely formed. Initially, a plentiful supply of nutrients needed by living organisms is available. Calcium and other soluble minerals are acquired from surrounding rocks and soil layers. Calcium is taken up by plants or animals and removed from circulation, since decay progresses slowly. The growth medium becomes increasingly acidic. Decay stops and nutrients become scarce. Humic and other weak acids form. Marsh gasses are released, and produce characteristic odors. The water turns murky brown as it becomes loaded with organic matter.

Limitation of available nutrients is reflected in the type of plants found in the bog. Only plants highly adapted to tolerate acidic bog conditions will survive. Gradually, the pond destroys itself. Dead and undecomposed plant matter accumulates and fills the bog from the bottom and sides. Plants grow across the top of the water forming mats thick enough to walk across. Eventually, the bog turns into a meadow, and then to forest.

### MYSTERIES OF THE BOG

When first seen by lumbermen, Spruce Flats contained a virgin growth of hemlock. Today, only the stumps of these trees remain. Evidence of a bog was not obvious. Early reports following lumbering indicate the area was “swampy”. Perhaps the timber harvest, followed by fires, caused the area to revert back to the mature bog stage. Subsequent attempts to reforest the bog failed. Dynamite was used to try and fracture the impervious hardpan, and relieve the swampy condition – to no avail.

The original depth of the bog is unknown. No major effort has been made to probe the bottom reaches of the bog. Soil augers reveal 6 to 8 inches of peat covering almost 2 1/2 feet of muck. It is difficult to penetrate because the auger strikes sandstone rocks.

## Rare Plants in the Bog

Where did the seed of the bog plants come from? Viable cranberry and cotton grass seeds remained in the soil and germinated when favorable conditions returned, following lumbering in 1908. Pitcher plants were introduced by members of the Westmoreland County Botanical Society. Sundew was also discovered in the bog. The origin of this plant is not known, nor is it known how long it may have been present. Seeds of other plants were distributed by wind and animals.

Insect eating plants have developed an unusual feeding habit to obtain nitrogen. All plants require this water-soluble element, which soon disappears from a bog. Insects have muscles made of proteins. Protein contains nitrogen. Insectivorous plants have evolved systems whereby they attract, trap and digest insects to acquire nitrogen.

#### PITCHER PLANT

Has tubular leaves with flared lips, and usually half filled with water. The leaves are 6” high. New leaves are light green but become heavily mottled with red as the growing season progresses. The dull red and yellow flower makes its appearance on a 1” stalk in June, and persists throughout summer. Insects are lured by a fragrance scarcely detected by man. As they investigate, they slip and fall into a pool of digestive juices where only the legs and wings remain. Recurved hairs near the tip of the leaf prevent their escape.



#### COTTON GRASS

Does not attract attention during the early part of the growing season. Not a clumpy grass, it forms a thin uniform growth over the bog. Light green plant with 2 or 3 leaves about 10” high. Seeds are produced in a globular cottony eye-catching ball that develops in late summer and persists most of the winter.



#### SUNDEW

A tiny plant not over 1” high. Flat leaves 1/4” across offer sweet smelling sticky hairlike projections that lure and capture insects. Digestive enzymes devour the insect body. Sundew prefers slightly elevated locations. Not widely distributed, the plants are located by looking for vermilion patches of growth.



#### LARGE CRANBERRY

A creeping shrub, not more than 4 inches high, found throughout the bog where water collects in pools. It is not found on dry hummocks. The rounded oval leaves have a reddish purple cast. Pink flowers bloom in July. The red berry averages 1/2 inch in diameter and matures in November.

