SUFFOLK COUNTY PARKS

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CRANBERRY BOG PRESERVE

An Interpretive Guide

SUFFOLK COUNTY PARKS

Steven Bellone
County Executive

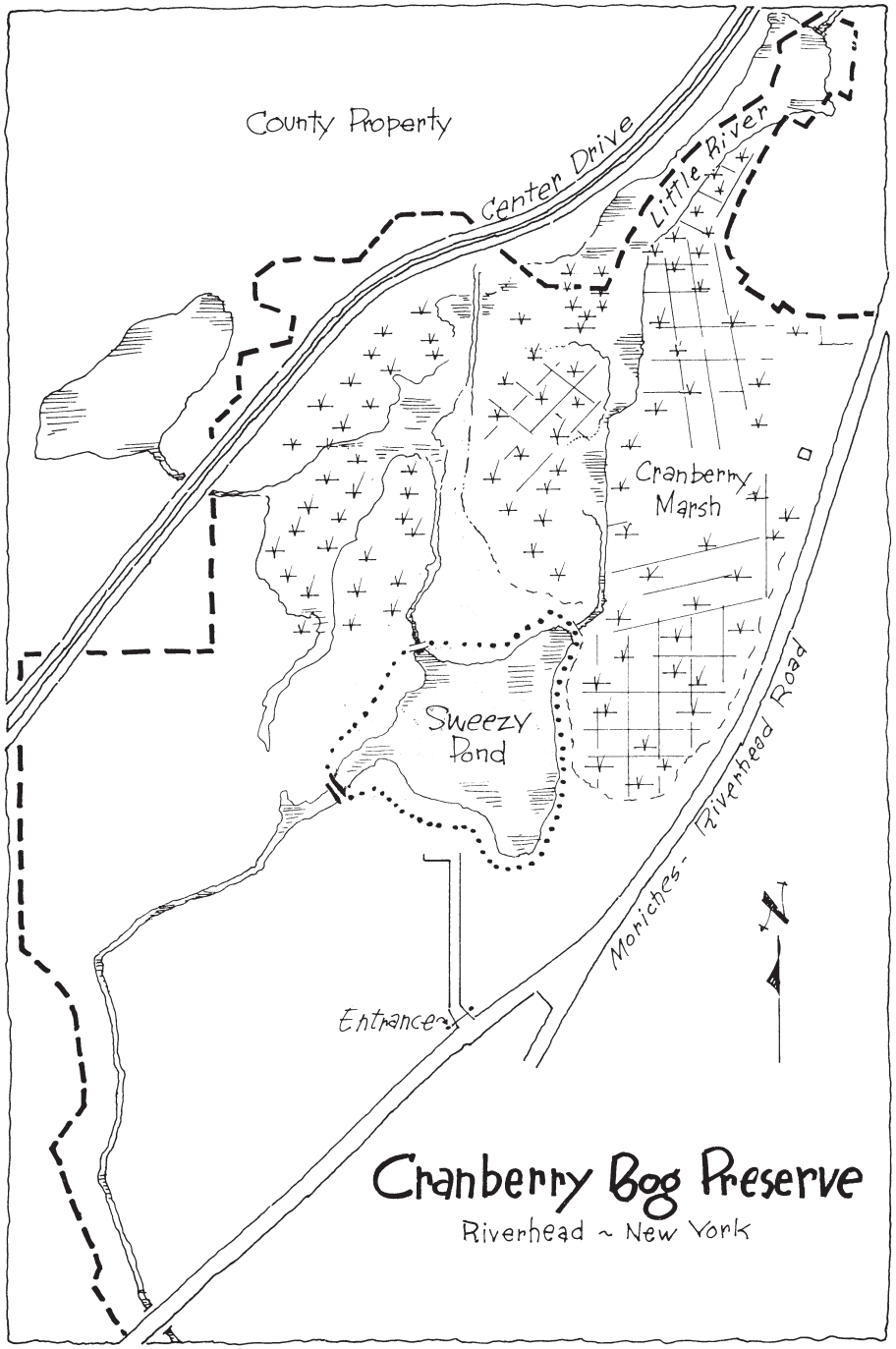
Suffolk County Department of Parks,
Recreation and Conservation

A MESSAGE FROM THE COUNTY EXECUTIVE

Dear Suffolk Resident:

The Suffolk County Parks Department manages over 48,000 acres of parkland, spanning from Huntington to Montauk. Each park has its own unique setting and recreational opportunities for people of all ages to enjoy.

This interpretive guide provides a brief history of this 165-acre park as well as an overview of the various plant and animal life that visitors can see within the Cranberry Bog Nature Preserve.



Notes

Cranberry Bog Preserve

AN INTERPRETIVE GUIDE
fourth edition
prepared originally, in 1973 by

The Cranberry Bog Preserve Committee
of
The Long Island Chapter of The Nature Conservancy

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Cranberry Bog Preserve
Suffolk County Department of Parks, Recreation and Conservation

Riverhead, New York

LONG ISLAND BOTANICAL SOCIETY

Dedicated to the promotion of field botany on Long Island, N.Y.

9 June 1995

Commissioner of Parks
Suffolk County Parks Department
P.O. Box 144
West Sayville, New York 11796

Re: **Dedication of the Cranberry Bog Preserve Interpretive Guide to Joseph M. Beitel**

Dear Commissioner:

On behalf of the Long Island Botanical Society, I extend sincere appreciation for honoring the late Joseph Beitel by dedicating the Cranberry Bog Preserve Trail Guide to his memory. Joe began his career in 1970 as a Park Interpreter for Suffolk County's Department of Parks, and he was instrumental in the 1973 publication of the original Cranberry Bog Interpretive Guide for which he compiled the Checklist of Plants.

Throughout his career, Joe taught classes and conducted workshops at various Suffolk County Parks. His research on ferns at Montauk County Park has been a significant contribution to the fern flora of New York State. Several ferns at Montauk County Park occur no where else in New York.

When Joe tragically passed away in 1991 at the age of 39, he had been working as a botanist for The New York Botanical Garden and was the vice-president of the Long Island Botanical Society. His death was a great loss to family and friends as well as the international scientific community. He is sorely missed by all who knew him.

Sincerely,

Eric Lamont

Eric Lamont, President

	SP	S	F	W
Nighthawk, Common		UB?	O	
Swift, Chimney	C	C	C	
* Hummingbird, Ruby-thr.	U	UB?	U	
Kingfisher, Belted	U		U	O
Flicker, Yellow-shafted	C	CB?	C	U
Sapsucker, Y.-bellied	U		U	
Woodpecker, Hairy	U	UB?	U	U
Downy	U	UB?	U	U
Kingbird, Eastern	U	UB?		
Flycatcher, Crested	U	UB?	U	
Phoebe, Eastern	U	UB	U	
Pewee, Eastern Wood	U	UB?	U	
Flyc., Olive-sided	R		R	
Swallow, Tree	U	UB?	U	
Bank	R		R	
Rough-winged	R		R	
Barn	U	UB?	U	
Martin, Purple	U	U		
Jay, Blue	U	UB?	U	U
Crow, Common	U	UB?	U	U
Chickadee, Black-capped	C	CB?	C	C
Nuthatch, White-breast	U	U	U	U
Red-breasted	U		U	U
Creeper, Brown	U		U	U
Wren, House	U	UB?	U	
Winter	U		U	U
Carolina	R	RB?	R	R
Mockingbird	U	UB?	U	U
Catbird	U	CB	C	
Thrasher, Brown	U	UB	U	
Robin	C	CB	C	U
Thrush, Wood	C	CB	U	
Hermit	U		U	
* Swainson's	U		U	
* Gray-cheeked	U		U	
* Veery	U	B?	U	
* Bluebird, Eastern	R		R	
Kinglet, Golden-crown	U		U	U
Ruby-crowned	U		U	R
Waxwing, Cedar	U		U	
Shrike				
* Northern				R
* Loggerhead			R	R
Starling	C	CB?	C	C
* Vireo, White-eyed	O		O	
Yellow-throated	O	U	O	
* Solitary	O		O	
Red-eyed	U	UB?	U	
Warbler, Black & White	U	UB?	U	
* Blue-winged	U	U	U	
* Tennessee	U		U	

	SP	S	F	W
* Nashville	O		O	
* Parula	U		U	
Yellow	C	CB	U	
* Magnolia	U		U	
* Cape May	O		O	
* Black-thr. Blue	U		U	
Myrtle	U		U	
* Black-thr. Green	U		U	
* Blackburnian	O		O	
Chestnut-sided	U	UB?	U	
* Bay-breasted	U		U	
* Blackpoll	C		C	
* Pine	U	UB?	U	
Prairie	U	UB?	U	
* Palm	U		U	
Ovenbird	U	UB?	U	
Waterthrush, Northern	U	U	U	
Warbler,				
Yellowthroat	C	CB	C	R
* Chat, Yellow-breasted	R		R	
Warbler,				
* Wilson's	R		R	
* Canada	U		U	
Redstart, American	C	OB?	C	
Sparrow, House	U	UB?	U	
Bobolink	R		R	
* Meadowlark, Eastern	O		O	O
Blackbird, Red-winged	C	CB	C	O
Oriole,				
Baltimore	U	UB?	U	
* Blackbird, Rusty	U		U	O
Grackle, Common	C	CB?	C	O
Cowbird, Brown-headed	C	CB?	U	O
Tanager, Scarlet	U	UB?	U	
Cardinal	U	UB?	U	U
* Grosbeak, Rose-breast	O		O	
* Bunting, Indigo	O		O	
Grosbeak, Evening	O		O	O
Finch, Purple	O		O	R
House	U	U	U	U
Redpoll, Common				R
Siskin, Pine	R		R	R
Goldfinch, American	C	CB	C	U
Crossbill, Red	R		R	R
White-winged	R		R	R
Towhee, Rufous-sided	C	CB	C	O
Junco, Slate-colored	C		C	C
Sparrow, Tree	C		C	C
* Sparrow, Chipping	U	UB?	U	
Field	U	UB?	U	O
* White-crowned	R		R	
White-throated	C		C	U
Fox	U		U	O
* Lincoln's	R		R	
Swamp	U	OB?	U	U
Song	C	CB	C	U

Check List of the Birds of the Cranberry Bog Preserve

Abundance
C Common
U Uncommon
O Occasional
R Rare

Occurence
F Flying Over
N Recorded nearby, probably occurs.
B Breeds
B? May breed but records lacking

* Presumed to occur, based on status in nearby areas.

	SP	S	F	W
Loon, Common	FO		FO	RN
* Red-throated	FR		FR	RN
Grebe,				
Pied-billed	O		O	UN
Cormorant,				
Double-crested	FO		FO	
Heron, Great Blue	U		U	U
* Egret, Common	R	R	R	
* Snowy	R	R	R	
Green	U	UB	U	
Black-cr. Night	R	R	R	
Bittern, American	O		O	
Least	R	RB?		
Swan, Mute	U	U	U	O
Whistling				
Goose, Canada	FU	UB	FU	
* Brant	FR		FR	
Mallard	U	UB?	U	U
Duck, Black	U	UB?	U	U
* Gadwall	R		R	R
* Pintail	R		R	RN
Teal, Green-winged	U		U	U
Blue-winged	O	O	O	
* Shoveler	R		R	RN
Widgeon,				
American	O		O	RN
Duck, Wood	U	UB	U	ON
* Redhead	R		R	UN
Duck, Ring-necked	U		U	UN
* Canvasback	R		R	UN
Scaup, Greater	O		O	UN
* Lesser	U		U	UN
* Goldeneye, Common	R		R	UN
* Bufflehead	R		R	UN
* Duck, Ruddy	U		U	UN
* Merganser, Hooded	U		U	ON
* Common				ON
Hawk				
* Sharp-shinned	R		R	R
* Cooper's	R		R	R
Red-tailed	O	O	O	O
* Red-shouldered	R		R	
Broad-winged	O	UB?	O	
* Rough-legged	R		R	R
Harrier	R		R	R
Osprey	O		O	
Kestrel, American	U	O	U	U
Grouse, Ruffed	U	UB	U	U
Bobwhite	U	UB	U	U
* Pheasant, Ring-necked	O	O	O	O
Rail,				
Virginia	O	RB?	O	O
Sora	O		O	R
* Gallinule, Common	R		R	
Coot	U		U	U
Woodcock	U	UB	U	R
Snipe	U		U	U
Sandpiper, Spotted	O	O	O	
Solitary	U	U	U	
Yellowlegs, Greater	O	O	O	
Lesser	O	O	O	
Gull,				
Great Black-backed	FC	FU	FC	FC
Herring	FC	FC	FC	FC
Ring-billed	FC	FC	FC	FC
Tern,				
Common		FU	FU	
Least		FU	FU	
Dove, Rock	U	U	U	U
Mourning	U	UB	U	U
Cuckoo, Yellow-billed	U	UB?	U	
Black-billed	U	UB?	U	
* Owl, Barn	R	R	R	R
* Screech	O	OB?	O	O
Great Horned	U	UB?	U	U
* Long-eared	R		R	R
* Short-eared	R		R	R
* Saw-whet	O		O	R
Whip-poor-will	U	UB?	U	

The Cranberry Bog Preserve

by Aline Dove

The Cranberry Bog Preserve is located in Southampton Township, southwest of the County Center in Riverhead. It encompasses 165 acres and is part of the drainage system of the Peconic River. The Little Peconic River flows through the Preserve on its way to join the main stream. The Little Peconic feeds Sweezy Pond, which was formed years ago to flood the cranberry bog, and now flows over the dam north of the bog through a large marshy area, which at times of high water is flooded. Most of the edges of the Preserve are bordered by typical Pine - Oak barrens. On the Northwest side, separated by a highway leading to the County Center, lies Cheney Pond, surrounded by a White-Cedar swamp, one of the finest remaining examples of its kind on Long Island. It contains some specimens of White-Cedar (Chamaecyparis thyoides) with trunks 16" in diameter, according to Roy Latham. Dr. R. C. Murphy notes in his book, "Fish-Shape Paumonok", "The Southern White-cedar has the unique distinction of filling space above the ground with a cubic volume of wood greater than that of the air between its crowded trunks."

The fresh water life is abundant and includes a variety of interesting mollusks, fish, turtles and amphibians. Along the margins of the ponds and streams have been found several rare species of caddis flies, dragonflies and moths. The rare and local Bog Copper (Lycaena thoe) is found here. This moth remains very close to its habitat, the bog, where its food plant, the cranberry grows.

The Pine-Oak barrens offer a collection of plants peculiar to this dry, sandy environment. Among them are Reindeer Lichen (Cladonia sp.), Bear berry (Arctostaphylos Uva-ursi), and Beach Heather (Hudsonia tomentosa), arctic plants which were the first to appear after the retreat of the glaciers. The Pines and Oaks maintain an acid soil which supports a community of acid tolerant plants, including many members of the Heath family.

The marshy areas provide food and shelter for a variety of wildlife including many waterfowl, such as the colorful Wood Duck, and the Canada Goose, a common nesting species. The dominant plants here are grasses, sedges, and rushes, highlighted in late summer by the showy pink blossoms of Rose Mallow (Hibiscus palustris).

The cranberry bog itself may soon become the sole example of this unique type of habitat to be found on Long Island. It has long been a mecca for students of rare and unusual plant and animal life. Many well known naturalists and botanists have made studies here. Roy Latham, the famous Long Island naturalist, whose vast collection of plants, animals, and Indian artifacts is now housed in the New York State Museum, included the Peconic River drainage area in his studies. He lists 13 species of orchids, 20 species of ferns, 59 species of sedges including such rarities as Water Hornrush (Rynchospera inundata) and Spike Rush (Eleocharis equisetoides). It is reportedly the only area in the state where Shining Whip Grass (Scleria nitida) is found. The herbarium of the New York State Museum contains also its own comprehensive collection of plants found in the bog, made at various times by state botanists.

The Cranberry Bog Preserve is a most valuable addition to the Suffolk County system of Parks, Preserves and Open Space. It is an essential component of the watershed of the Peconic River, serving as a natural reservoir for our fresh water supply. It is a haven of natural, unspoiled beauty on the edge of a rapidly growing urban center, providing sanctuary for a rich and varied collection of plant and animal life. It offers to our youth and to coming generations the increasingly rare opportunity to enhance their education through first hand observation of the relationship of living things in an undisturbed environment. It is an outdoor museum, to be carefully guarded and cherished.

History of the Cranberry Bog

by Harold Evans

Berries were picked by local women with scoops imported from Cape Cod. Strings stretched across the bog made lanes to keep the pickers in line. One of the insect pests was the "toad bug" which Dr. F. A. Sirrine, then of the Cornell Experiment Station and later the founder of Briarmere Farm in Riverhead, advised controlling by slowly flooding the beds to drive the "bugs" to the edges. They were then sprayed with kerosene and burned. Fungus diseases were controlled by "Bordeaux Mixture", lime and blue vitriol, sprayed on the beds through a boom carried by two men. The concrete tanks on the upper dam are all that remains of the sophisticated system the Woodhulls devised for spraying the bogs. In the "spray house" on the dam, water was pumped into the tanks, mixed with the lime and copper sulphate, and from there, piped to each section of the bog where hoses were attached to feed the spray booms. Some of the pipes can still be seen below the dam. No wheeled equipment could be used in a bog, of course, as the

Above, planting the cranberry bushes in the sand. Below, harvesting; from pictures in the album of Frank Woodhull.

Phylum Bryozoa
- Pectinatella magnifica. Bryozoan.
- Plumatella (sp.). Bryozoan.

GREEN ALGAE
- Phylum Chlorophyta
  - Chaetophora (sp.). Green Algea.
  - Closterium (sp.). Green Algea.
  - Micrasterias floiacea. Green Algae.
  - Spirogyra (sp.). Green Algae.
  - Ulothrix (sp.). Green Algae.
  - Volvox tertius. Green Algae.

Check List of the Fish of the Cranberry Bog Preserve

Anguilla rostrata. American Eel.
Umbra pygmaea. Eastern Mudminnow.
Essox americanus. Redfin Pickerel.
Erimyzon oblongus. Creek Chubsucker.
Notemigonus crysoleucas. Golden Shiner.
Notropis bifrenatus. Bridled Shiner.
Ictalurus nebulosus. Brown Bullhead.
Fundulus diaphanus. Banded Killifish.
Roccus americana. White Perch.
Micropterus salmoides. Largemouth Bass.
Lepomis gibbosus. Pumpkinseed or Common Sunfish.
Enneacanthus obesus. Banded Sunfish.
Ambloplites rupestris. Rock Bass.
Perca flavescens. Yellow Perch.
Etheostoma fusiforme. Eastern Swamp Darter.

Check List of Reptiles and Amphibians of the Cranberry Bog Preserve

(According to a survey by Bill Christopher and Jim Romansky.)

TURTLES.
- Chelydra serpentina. Snapping Turtle.
- Sternotherus oderatus. Musk Turtle.
- Kinosternon subrubrum. Mud Turtle.
- Clemmys guttata. Spotted Turtle.
- Terrapene carolina. Box Turtle.
- Chrysemys picta. Painted Turtle.

SNAKES.
- Natrix sipedon. Common Water Snake.
- Thamnophis sauritus. Ribbon Snake.
- T. sirtalis. Common Garter Snake.
- * Heterodon platyrhinos. Eastern Hognose Snake.
- Diadophis punctatus. Eastern Ringneck Snake.
- Coluber constrictor. Black Racer.

SALAMANDERS.
- Plethodon cinereus. Red-backed Salamander. (Red and gray color phases)

FROGS AND TOADS.
- Bufo Fowleri. Fowler's Toad.
- Hyla crucifer. Spring Peeper.
- * H. versicolor. Gray Treefrog.
- Rana catesbeiana. Bullfrog.
- R. clamitans. Green Frog.
- R. pipiens. Leopard Frog.

* Not seen in survey. Taken from records of Otto Heck.

Check List of the Mammals of the Cranberry Bog Preserve

FAIRLY COMMON MAMMALS.

Didelphis marsupialis. Opossum.
Sorex cinereus. Masked Shrew.
Blarina brevicauda. Short-tailed Shrew.
Scalopus aquaticus. Eastern Mole.
Myotis lucifugus. Little Brown Bat.
Eptesicus fuscus. Big Brown Bat.
Lasiurus borealis. Red Bat.
Sylvilagus floridanus. Eastern Cottontail.
Tamias striatus. Eastern Chipmunk.
Sciurus carolinensis. Gray Squirrel.
Glaucomys sabrinus. Northern Flying Squirrel.
Peromyscus leucopus. White-footed Mouse.
Microtus pennsylvanicus. Meadow Mouse.
Pitymys pinetorum. Pine Mouse.
Ondatra zibethicus. Muskrat.
Vulpes vulpes. Red Fox.
Procyon lotor. Racoon.
Mustela frenata. Long-tailed Weasel.
Mustela vison. Mink.
Odocoileus virginianus. White-tailed Deer.

VERY RARE OR LOCAL MAMMALS.

Sylvilagus transitionalis. New England Cottontail.
Mus musculus. House Mouse.
Rattus norvegicus. Norway Rat.
Zapus hudsonius. Meadow Jumping Mouse.
Mephitis mephitis. Striped Skunk.

Pyrola rotundifolia. Round-leaved Pyrola.
Rhododendrum viscosum. Sweet Honeysuckle.
Kalmia angustifolia. Sheep Laurel.
K. latifolia. Mountain Laurel.
Eubotrys racemosa. Fetterbush.
Lyonia ligustrina. Male-berry.
L. mariana. Staggerbush.
Chamaedaphne calyculata. Leather-leaf.
Epigaea repens. Trailing Arbutus.
Gaultheria procumbens. Wintergreen.
Arctostaphylos Uva-ursi. Bearberry.
Gaylussacia frondosa. Dangleberry.
G. baccata. Huckleberry.
Vaccinium atrococcum. Black High-bush Blueberry
V. corymbosum. High-bush Blueberry.
V. macrocarpon. Cranberry.
V. Oxycoccos. Small Cranberry.

PRIMULACEAE, Primrose Family.
Lysimachia quadrifolia. Whorled Loosestrife.
L. terrestris. Swamp Candles.
Trientalis borealis. Star-flower.

APOCYNACEAE, Dogbane Family.
Apocynum medium. Internediate Dogbane.
A. cannabinum. Indian Hemp.

ASCLEPIADACEAE, Milkweed Family.
Asclepias incarnata. Swamp Milkweed.
A. syriaca. Common Milkweed.

CONVULVULACEAE, Morning-glory Family.
Cuscuta (sp.). Dodder.

VERBENACEAE, Vervain Family.
Verbena x Engelmanii. Verrain.

LABIATAE, Mint Family.
Scutellaria lateriflora. Mad-dog Skullcap.
Lycopus virginicus. Bugleweed.

SCROFULARIACEAE, Figwort Family.
Verbascum Blattaria Moth Mullein.
Linaria vulgaris. Butter and Eggs.
L. canadensis. Blue Toadflax.
Melampyrum lineare. Cow-wheat.

LENTIBULARIACEAE, Bladderwort Family.
Utricularia purpurea. Purple Bladderwort.
U. intermedia. Flat-leaved Bladderwort.
U. vulgaris. Common Bladderwort.
U. subulata, forma cleistogama.
Awl-shaped Bladderwort.

PLANTAGINACEAE, Plantain Family.
Plantago lanceolata. English Plantain.
P. aristata. Buckhorn.

RUBIACEAE, Madder Family.
Mitchella repens. Partridge Berry.
Cephalanthus occidentalis. Buttonbush.
Diodia teres. Buttonweed.
Galium trifidum. Bedstraw.
G. tinctorium. Bedstraw.

CAPRIFOLIACEAE, Honeysuckle Family.
Viburnum nudum. Possum-Haw.
V. dentatum. Arrow-wood.
Sambucus canadensis. Common Elder.
Lonicera japonica. Japanese Honeysuckle.

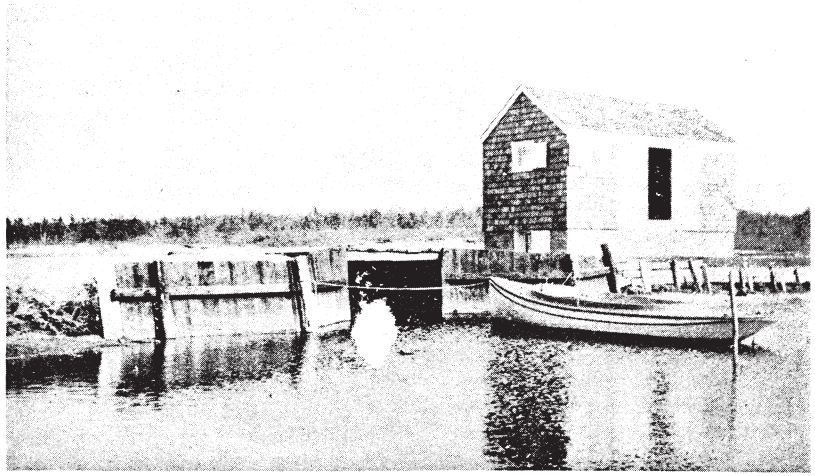
CAMPANULACEAE, Harebell Family.
Specularia perfoliata. Venus' Looking-glass.

COMPOSITAE, Composite Family.
Ambrosia artemisiifolia. Common Ragweed.
Anthemis Cotula. Mayweed.
Achillea Millefolium. Yarrow.
Chrysanthemum Leucanthemum. Ox-eye Daisy.
Chrysopsis falcata. Sickle-leaved Golden Aster.
Solidago tenuifolia. Slender Fragrant Goldenrod.
S. microcephala. Tiny-headed Goldenrod.
Erigeron (sp.) Daisy Fleabane.
Eupatorium dubium. Joe-Pye Weed.
E. hyssopifolium. Hyssop-leaved Thoroughwort.
E. perfoliatum. Boneset.
Cirsium vulgare. Bull Thistle.
Hicracium pratense. King Devil.
Cichorium Intybus. Chickory.
Krigia virginica. Dwarf Dandelion.

(Nomenclature according to THE NEW BRITTON AND BROWN ILLUSTRATED FLORA.)

Check List of Invertebrates and Common Green Algae of the Cranberry Bog Preserve

INVERTEBRATES:
Phylum Porifera
Spongilla fragilis. Sponge.
Phylum Platyhelminthes
Dugesia maculata. Planarian.
Phagocata gracilis. Planarian.
Phylum Annelida
Glossiphonia (sp.). Leech.
Glossiphonia stagnalis. Leech.
Phylum Arthropoda
Class Insecta
Haliplus (sp.). Crawling Water Beetle.
Libellula (sp.). Dragonfly nymph.
Notonecta (sp.) Black Swimmer.
Perlocoris (sp.). Whirligig Beetle.
Class Crustacea
Asellus communis. Isopod.
Cypridopsis vidua. Ostracod.
Cyclops viridis. Cyclops.
Gammarus fasciatus. Fairy Shrimp.
Hyalella knickerbockeri. Fairy Shrimp.
Macrothrix (sp.). Water Flea.
Phylum Mollusca
Class Gastropoda
Amnicola limosa. Tiny River Snail.
Campeloma decisium. Small Mystery Snail.
Gyralulus parvus. Tiny Ram's Horn Snail.
Helisoma anceps. Keeled Ram's Horn Snail.
Lymnaea columella. Wide-mouthed Pond Snail.
Physa heterostropha. Tadpole Snail.
Class Bivalva
Anodonta cataracta. Fragile Freshwater Mussel.
Elliptio complanata. Filter Tank Mussel.
Musculium (sp.). Fingernail Clam.
Sphaerium rhomboideum. Fingernail Clam.



The sluiceway and the old barn (foundation still standing) looking east from Sweezy Pond.

whole operation depended on the plumbing system and strong men. Sand was carried to the beds and the berries were hauled out by boat on Little River. Frank Woodhull has a picture in his album of the "motor launch" used to pull barges in the bog. A side operation was a half-acre raspberry patch west of the dam. Many of these berries were shipped to New York.

When Riverhead was a small town, during the mid-nineteenth century, it had to be as self-sufficient as possible. It had an advantage over most settlements on Long Island in that it had streams for water power. Other villages had to rely on wind and tide mills. Mills were built along the Peconic River and one, Sweezy's Red Grist Mill on Peconic Avenue, was powered by the energy of Little River, the outlet of Great Pond, now called Wildwood Lake. John Sweezy, the owner and operator of the mill which ground the grain for the farmers in the area, owned the woods and swamps along the river and much of the land around Great Pond, so that he could regulate the flow to the mill by means of dams. A flume brought the water from the lower dam, near the present County Center, to the mill.

In 1885 two brothers, M. H. and S. H. Woodhull, formed a partnership to grow cranberries and purchased all the Sweezy property. M. H. Woodhull took the job of grading the marsh so that it could be evenly flooded. In the year 1885 he and his crew were able to work until the Christmas holidays and prepared ten acres. The next spring it was "sanded"—the muck was covered with a layer of sand—and cranberry vines were set in May. In that year, 1886, fifteen acres more were graded and were planted the next spring. As many as 35 men were employed at $1 per day to move sand in wheelbarrows on planks to sand the bog. The vines were purchased in New Jersey, and later, Cape Cod, and cost $4 per barrel.

The first picking from the bog was in 1889, when 10 bushels were sold locally. In 1890, 90 bushels were sold at $1.90 a crate; in 1891 production was 500 bushels at $3.25, and in 1892 the crop was 21,600 bushels which sold for $2 per bushel. These figures are from notes made by S. H. Woodhull describing the early days of the business. He bought out his brother's interest in the partnership not long after it started, and continued to operate the business with his son, Frank, until the 1930's. Mr. Woodhull wrote that in 1898 he cleared, above all expenses, $3,775.40, and deducting half of this for amortization of his capital investment, had left $1,887.70, which amounted to better than 5 per cent of his $30,000 investment. We are indebted to Frank Woodhull, who now lives near the lower dam, for this information on the early days of the bog.

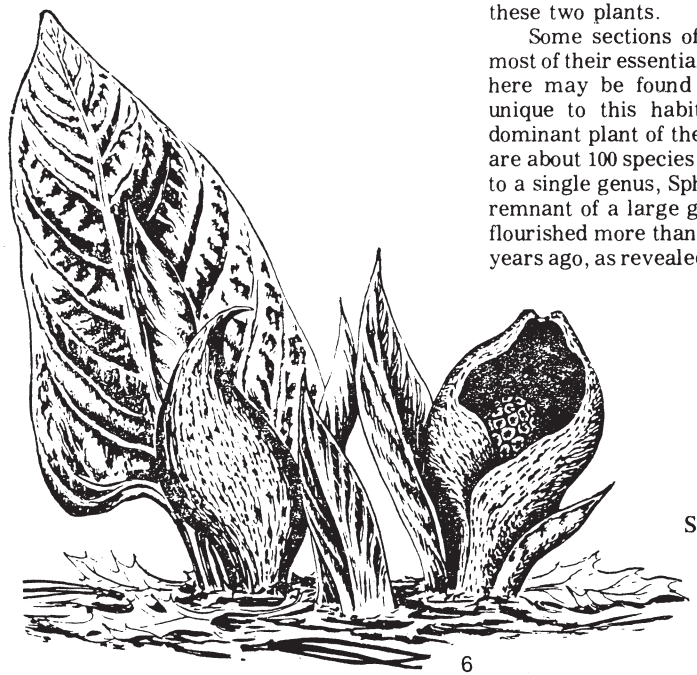
The Bog and its Plants

by Aline Dove

Among the many aquatic communities to be found on Long Island, the bog is one of the rarest and most intriguing. The key physical characteristic most necessary to the formation of a bog is lack of drainage. Most bogs form in depressed, wet areas such as shallow ponds or lakes, surrounded by higher ground, with little or no surface inflow or outflow. These shallow bodies of water are converted to bogs by two processes: the accumulation on the bottom of dead plant debris from floating vegetation, and the growth outward, from the edge, of shoreline plants. The dense mat of vegetation thus formed eventually fills in the shallow basin, a process which takes thousands of years. This floating plant mass serves as insulation to keep the water temperature always cool, and also decreases circulation. These conditions within the stagnant water severely retard the process of decay; organic debris is only partly decomposed and eventually forms peat. the peat releases humic acid, intensifying the already acid state of the water. This acidity, combined with the lack of nutrients available (these being tied up in the partially decomposed peat), is the environmental factor governing the limited plant life capable of survival under these harsh conditions.

In order to grow cranberries commercially, the Cranberry Bog was altered. Drainage ditches were dug, criss-crossing its surface, to facilitate annual flooding. When the Bog was abandoned by the cranberry growers, it was no longer flooded, but the ditches remained as permanent drains. Thus, large areas are drying, and transition to woodland is occurring at an accelerated pace. The many Red Maples (Acer rubrus) growing on the dryer hummocks demonstrate this transition. Here should be mentioned two other plants commonly found growing on the hummocks and dryer edges of the Bog. One is Poison Sumac (Rhus vernix), which is the only sumac bearing whitish fruit. Its branches are smooth, speckled with dark dots, and the leaflets have smooth edges. It is extremely poisonous to the touch! The second is the more familiar Poison Ivy (Rhus radicans), a vine with shiny leaves divided into three leaflets. All who venture into the Bog should learn to recognize these two plants.

Some sections of the Bog still retain most of their essential characteristics, and here may be found many of the plants unique to this habitat. Peat moss, the dominant plant of the Bog, of which there are about 100 species in the world, belongs to a single genus, Sphagnum. It is the last remnant of a large group of plants which flourished more than two hundred million years ago, as revealed by fossil remains. It



Skunk Cabbage

Q. ilicifolia, Scrub Oak.
Q. marilandica. Black-jack Oak.
Q. velutina. Black Oak.
Q. borealis, var. maxima. Red Oak.
Q. coccinea. Scarlet Oak.

MORACEAE, Mulberry Family.
Morus rubra. Red Mulberry.

URTICACEAE, Nettle Family.
Boehmeria cylindrica. False Nettle.

POLYGONACEAE, Smartweed Family.
Rumex Acetosella. Sheep Sorrel.
Polygonum persicaria. Lady's Thumb.

CHENOPODIACEAE, Goosefoot Family.
Atriplex patula. Orache.

NYCTAGINACEAE, Pokeweed Family.
Phytolacca verticillata. Pokeweed.

AIZOACEAE, Carpet-weed Family.
Mollugo verticillata. Carpet-weed.

CARYOPHYLLACEAE, Pink Family.
Scleranthus anuus. Knawel.
Spergularia rubra. Sand Spurry.
Saponaria officinalis. Bouncing Bet.
Dianthus armeria. Deptford Pink.

NYMPHAEACEAE, Water Lily Family.
Brasenia Schreberi. Water-shield.
Nuphar advena. Yellow Pond Lily.
Nymphaea odorata. Water Lily.

LAURACEAE, Laurel Family.
Sassafras albidum. Sassafras.
Lindera benzoin. Spice Bush.

CRUCIFERAE, Mustard Family.
Lepidium virginicum. Pepper Grass.
Alliana officinalis. Garlic Mustard.

SARRACENIACEAE, Pitcher-plant Family.
Sarracenia purpurea. Pitcher-plant.

DROCERACEAE, Sundew Family.
Drosera filiformis. Thread-leaved Sundew.
D. rotundifolia. Round-leaved Sundew.
D. intermedia. Oval-leaved Sundew.

ROSACEAE, Rose Family.
Spirea tomentosa. Steeple-bush.
Rubus hispidus. Dewberry.
Rubus (sp.). Blackberry.
Rosa palustris. Swamp Rose.
Prunus serotina. Black Cherry.
Prunus maritima Beach Plum.
Pyrus malus. Apple.
Aronia arbutifolia. Red Chokeberry.
Amelanchier canadensis. Shad-bush.

CAESALPINIACEAE, Caesalpinia Family.
Cassia nictitans. Wild Sensitive Plant.

FABACEAE, Bean Family.
Trifolium arvense. Rabbit-foot Clover.
Melilotus alba. Wild Sweet Clover.
Robinia pseudoacacia. Black Locust.
Vicia sativa. Common Vetch.

POLYGALACEAE, Milkwort Family.
Polygala cruciata. Cross-leaved Milkwort.

ANACARDIACEAE, Cashew Family.
Rhus radicans. Poison Ivy.
R. vernix. Poison Sumac.
R. copallinum. Dwarf Sumac.
R. glabra. Smooth Sumac.

AQUIFOLIACEAE, Holly Family.
Ilex glabra. Inkberry.
I. laevigata. Winterberry.

ACERACEAE, Maple Family.
Acer rubrum. Red Maple.
A. negundo. Box Elder.

BALSAMINACEAE, Touch-me-not Family.
Impatiens biflora. Jewel-weed.

VITACEAE, Grape Family.
Vitis aestivalis. Summer Grape.
V. Labrusca. Fox Grape.
Parthenocissus quinquefolia. Virginia Creeper.

HYPERICACEAE, St John's-wort Family.
Hypericum punctatum. Common St. John's-wort.
H. mutilum. Dwarf St. John's-wort.
H. canadense. Canadian St. John's-wort.
H. gentianoides. Gentian-leaved St. John's-wort.
Triadenum virginicum. Marsh St. John's-wort.

MALVACEAE, Mallow Family.
Hibiscus palustris. Rose Mallow.

CISTACEAE, Rockrose Family.
Helianthemum canadense. Frostweed.
Hudsonia tomentosa. Hudsonia.
Lechae (sp.). Pinweed.

VIOLACEAE, Violet Family.
Viola (sp.). Violet.

LYTHRACEAE, Loosestrife Family.
Decodon verticillatus. Swamp-loosestrife.

MELASTOMACEAE, Melastoma Family.
Rhexia virginica. Virginia Meadow Beauty.

ONAGRACEAE, Evening Primrose Family.
Oenothera biennis. Evening Primrose.

ARALIACEAE, Ginseng Family.
Aralia nudicaulis. Wild Sarsaparilla.

UMBELLIFERAE, Parsley Family.
Hydrocotyle umbellata. Water Pennywort.
H. verticillata. Water Pennywort.
H. americana. Water Pennywort.
Daucus carota. Queen Anne's Lace.
Cicuta maculatum. Water Hemlock.
Cicuta bulbifera. Bulb-bearing Water Hemlock.

CORNACEAE, Dogwood Family.
Nysa sylvatica. Pepperidge.

CLETHRACEAE, White Alder Family.
Clethra alnifolia. Sweet Pepper-bush.

ERICACEAE, Heath Family.
Monotropa uniflora. Indian Pipe.
Chimaphila maculata. Spotted Wintergreen.

Check List of Plants of the Cranberry Bog Preserve

MOSSES
Sphagnum (sp.)
Polytrichum commune. Common Haircap Moss.
P. juniperinum. Juniper Haircap Moss.
P. piliferum. Awned Haircap Moss.
Ceratodon purpureus. Burned-ground Moss.
Dicranum scoparium. Broom Moss.
Aulacomnium palustre. Ribbed Bog Moss.
Leucobryum glaucum. Pincushion Moss.
Leptobryum pyriforme. Long-necked bryum.
Thuidium delicatulum. Common Fern Moss.
Climacium Kindbergii. Tree Moss.
Hypnum imponens. Pinnate Hypnum.

FERNS AND FERN ALLIES
Lycopodium inundatum. Bog Clubmoss.
L. obscurum. Tree Clubmoss.
L. complanatum. Running Pine.
Osmunda regalis. Royal Fern.
O. cinnamomea. Cinnamon Fern.
Dennstaedtia punctilobula. Hay-scented Fern.
Pteridium aquilinum. Bracken.
Onoclea sensibilis. Sensitive Fern.
Woodwardia virginica. Virginia China Fern.
Athyrium Filix-femina. Lady Fern.
Thelypteris palustris. Marsh Fern.
T. simulata. Massachusetts Fern.

FLOWERING PLANTS
PINACEAE, Pine Family.
Pinus rigida, Pitch Pine.

CUPRESSACEAE, Cypress Family.
Chamaecyparis thyoides. Atlantic White Cedar.

SPARGANIACEAE, Bur-reed Family.
Sparganium androcladum. Branching Bur-reed.

ALISMACEAE, Water Plantain Family.
Sagittaria teres. Slender Arrow-head.
S. Engelmanniana. Engelmann's Arrow-head.
S. latifolia. Broad-leaved Arrow-head.

HYDROCHARITACEAE, Frog's-bit Family.
Vallisneria americana. Tape Grass.

CYPERACEAE, Sedge Family
Cyperus Houghtonii.
C. strigosus.
C. Grayii.
C. dentatus.
Dulichium arundinaceum.
Eleocharis equisetoides.
E. Robbinsii.
E. palustris.
E. ambigens.
E. calva.
E. halophila.
E. Wolfii.
E. acicularis.
E. tortilis.
E. tenuis.
Scirpus americanus
S. cyperinus.
S. Eriophorum.
Eriophorum virginicum. Cotton Grass.
Rhynchospora chalaracephala.
R. alba. White-headed Beak-rush.
R. capitellata.
R. pallida.
R. fusca.
Cladium mariscoides.
Carex disperma.
C. Howei.
C. muricata.
C. scoparia.
C. argyrantha.
C. albolutescens.
C. cumulata.
C. normalis.
C. vestita.
C. Walteriana.
C. stricta. Saw Grass.
C. comosa.

ARACEAE, Arum Family
Symplocarpus foetidus. Skunk Cabbage.

LEMNACEAE, Duckweed Family.
Lemna minor, Duckweed.

ERIOCAULACEAE, Pipewort Family
Ericaulon septangulare. Seven-angled Pipewort.

XYRIDACEAE, Yellow-eyed Grass Family
Xyris flexuosa. Slender Yellow-eyed Grass.
X. caroliniana. Carolina Yellow-eyed Grass.

PONTEDERIACEAE, Pickerel-weed Family.
Pontederia cordata. Pickerel-weed.

LILIACEAE, Lily Family.
Smilacina racemosa. False Solomon's Seal.
S. stellata. Starry False Solomon's Seal.
Maianthemum canadense. Wild Lily of the Valley.
Smilax (sp.). Catbrier.

IRIDACEAE, Iris Family
Iris pseudoacorus. Yellow Iris.
I. versicolor. Blue Flag.

ORCHIDACEAE. Orchid Family.
Cypripedium acaule. Pink Lady-slipper.
Habenaria blephariglottis. White Fringed Orchid.
H. lacera. Ragged Fringed Orchid.
Pogonia ophioglossoides. Rose Pogonia.
Calopogon pulchellus. Grass Pink.
Spiranthes cernua. Nodding Ladies' Tresses.

SALICACEAE, Willow Family.
Populis grandidentata. Large-toothed Aspen.
Populus tremuloides. Quaking Aspen.
Salix nigra. Black Willow.
S. babylonica. Weeping Willow.

MYRICACEAE, Bayberry Family.
Myrica asplenifolia. Sweet Fern.
M. Gale. Sweet Gale.
M. pensylvanica. Bayberry.

JUGLANDACEAE, Walnut Family.
Carya ovata. Shag Bark Hickory.

BETULACEAE, Birch Family.
Betula populifolia. Gray Birch.
Alnus rugosa. Speckled Alder.

FAGACEAE, Beech Family.
Quercus alba. White Oak.
Q. prinoides, var. prinoides. Dwarf Chinkapin Oak.

forms dense cushions in shallow water which produce rapid growth on top, while the lower portion dies and floats to the bottom. Sphagnum is capable of absorbing great quantities of water, thus providing a suitable surface on which other plants may grow. One of the most familiar of these is the Cranberry, a woody, evergreen vine in the Heath family, which bears its familiar, bright red berries in the fall. There are two species here: American Cranberry (Vaccinium macrocarpon), the commonly cultivated species, and Small Cranberry (Vaccinium oxycoccus), a smaller, more dainty plant, quite rare.

Many of the other woody plants are members of the Heath family. Most abundant is Leather Leaf (Chamaedaphne caliculata), a low growing shrub with leathery, elliptical leaves, the under sides of which are covered with minute, yellow glands. It is the spreading stems and roots of this plant which form a major part of the supporting network of vegetation in the Bog. Other Heaths commonly found are Swamp Honeysuckle (Rhododendron viscosum), a shrub bearing loose clusters of white, fragrant trumpet-shaped flowers, sticky to the touch, and several species of Blueberry (Vaccinium), some bearing the usual powdery blue berries and one with a black fruit.

In August the air is filled with the spicy fragrance of the long, white flowering spikes of Sweet Pepperbush (Clethra alnifolia), a member of the White Alder family, which grows in profusion along the edges of the Bog, the streams and the ponds. Typical too, is Sweet Gale (Myrica Gale), the leaves of which, when crushed, give off the characteristic scent of Bayberry, its upland counterpart.

Although thirteen or more species of Orchids have been recorded in the Bog and environs, most of these are of rare occurrence. There are, however, two species which may be seen with certainty; they are among the most typical of the Bog flora. One is the Grass Pink (Colopogon pulchellus), bearing from three to nine sweet-scented, magenta-pink flowers on a slender stem, with one grass-like leaf growing from its base. The other is the Rose Pogonia (Pogonia ophioglossoides), its crimson-pink blossom borne singly on a stem, with a lance-shaped leaf half way up the stem, and another smaller leaf just below the blossom. Orchids are known not only for their singular, delicate beauty, but for their incredibly intricate adaptations for cross-fertilization by insects. The anatomy of Orchids is quite different from that of other flowers, but in essence, it forces the pollinating insect to carry pollen on its back from one Orchid to another in its quest for nectar. It is claimed by investigators that nearly every one of the thousands of species of Orchids depends upon a different kind of insect for pollination—sometimes on a single species. This high degree of specialization indicates that Orchids are one of the most highly evolved plant families.

Pitcher-plant and Round-leaved Sundew

Probably the most curious plants in the Bog are the carnivorous species. These strange plants are equipped with various mechanisms which allow them to trap and digest a variety of small insects. It is believed that they developed this carnivorous habit in order to obtain the essential nitrogen otherwise lacking in the nutrient-deficient environment of a bog. Best known among these highly specialized plants is the Pitcher Plant (Sarracenia purpurea). Its leaves are hollow, pitcher-shaped tubes, smooth on the outside, but covered on the inside with stiff, reflexed hairs. These leaves are partially filled with a mixture of rain water and a sweet nectar secreted by the plant, which serves to attract insects. The downward curving hairs allow an insect an easy descent, but make it impossible for it to climb back out; it soon falls into the water and drowns. The soft parts are then

digested by enzymes secreted from the base of the leaf. The odd, globe-like flowers are borne singly on a stem rising above the leaves and are reddish-purple in color.

The Sundews, small plants of which there are three species in the Bog, have developed an entirely different method for capturing their prey. The leaves, radiating from a basal rosette, are covered with minute, reddish hairs exuding a sticky fluid, which attracts and then entraps the insects. Once an insect is captured, the hairs slowly bend inward, pressing the insect against the leaf, where the digestive enzymes go to work. Despite the carnivorous habits of these plants, they have a singular beauty, accented by the clear drops of fluid on the leaf hairs, giving the appearance of sparkling dewdrops. The flowers grow in clusters at the end of a slender stem. Two of the species, Round-leaved Sundew (Drosera rotundifolia) and Oval-leaved Sundew (D. intermedia) have tiny white flowers, while the third, and least common, the Thread-leaved Sundew (D. filiformis) bears somewhat larger lavender flowers, with as many as sixteen to a stem.

A genus of aquatic plants, the Bladderworts (Utricularia), comprise the third type of carnivorous plant to be found in the Bog. Although not specifically bog plants, since they thrive in a variety of shallow water environments such as Sweezy Pond and the Peconic River, they grow in profusion in the drainage ditches throughout the Bog. Being submerged, they would go unnoticed by most observers, except for their bright yellow or purple blossoms which extend above the surface of the water. Concealed among the thread-like segments of the leaves are hundreds of death traps for minute water animals. These are small sacs, or bladders, each with a slit-shaped opening, guarded by a valve, and armed with teeth and stiff bristles. The bladders are deflated, with the sacs indented. When a tiny animal swims into the opening in search of food, its movements stimulate the valve to open. Water is pulled into the bladder, carrying with it the hapless creature which triggered the process. The inside of the bladder is lined with hairs which prevent escape, and the body remains to decompose, forming nitrogenous food for the plant. In a short time, the bladder is set for another capture. The remarkable efficiency of this system is demonstrated by a study which estimated that the bladders of one large plant contained 150,000 living organisms.

These are a few of the unique plants which grow in the highly specialized environment of the Cranberry Bog. Most of them are protected by New York State Law. It is illegal to collect or otherwise disturb them. Observe them, study them, and leave them for all who follow.

Invertebrates and Some Common Green Algae of the Cranberry Bog Preserve

by Ronald Rozsa

Ten species of mollusks were collected in the Cranberry Bog, six are pond snails and four are clams. The pond snails have small brown delicate shells and can be found on rocks, crawling over the muddy bottom of the bog, and on aquatic plants. The wide mouthed pond snail is commonly collected on pond lillies. No land snails were collected in the bog although they should be found in a bog with such diverse habitats. The two species of fingernail clams collected in the bog have tiny, fragile little shells and are commonly found along the shores in mud, under wood and at the base of aquatic plants. The two mussels that occur in the bog are the fragile fresh water mussel and the filter tank mussel; both can be found in mud. The fragile freshwater mussel is greenish-yellow; the filter tank mussel is dark brown with a heavier inflated shell. The filter tank mussel can be used in the freshwater aquarium as a natural filter to purify the water.

The freshwater sponges collected in the bog formed small colonies the size of a quarter on submerged pieces of wood. Freshwater sponges generally live only one year, reaching their peak growth

Tree, White-throated, Fox and Swamp Sparrows plus the permanently resident Blue Jay, Crow, Black-capped Chickadee and Song Sparrow.

Thus, at any season, a visitor to the bog is sure to encounter birds of some kind, perhaps new to him, perhaps old friends. In either case, they are vital parts of the natural community, indispensible components of the intricate ecological association that one can explore and study and enjoy in the Cranberry Bog Preserve.

Mammals of the Cranberry Bog

by James Romansky

There are about twenty-five species of mammals found in the Preserve. Some are extremely rare but are known to be in the general area, thus are included. The species list was obtained through the courtesy of Paul Connor of the New York State Museum in Albany.

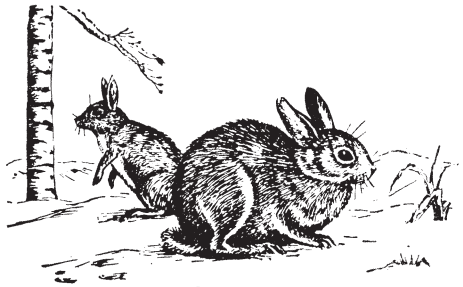
A casual glance at the species list will surprise many people. Mink, skunk and bats! Never. Many mammals are nocturnal and therefore not encountered during the day. Many are small and easily overlooked. The smallest mammal in the Preserve is the masked shrew which is smaller in size than an adult's pinky. Shrews are beneficial bundles of energy that eat at least their own body weight in insects every day. This would be similar to a 150 pound man eating 150 pounds of beef every day.

The bats are flying insect eaters that help to control mosquito populations. The species present on Long Island don't suck blood as their southwestern cousins do. Our species do carry rabies and should never be handled.

Most people are familar with the house mouse, but there are several wild species present locally. Mice are indefatigable reproducers and some can produce three litters of young a year. The first litter is also capable of having young the same year they are born. These animals could easily overpopulate an area if it weren't for the predation of snakes, hawks, owls and carnivorous mammals. Even the fox is known to eat mice.

Cottontail rabbits and white-tailed deer are familar to most people. These mammals are browsers, they eat woody stems. They are not grazers such as cows and horses which eat non-woody stems. In many areas deer are blamed for tree and shrub damage simply because the damage occurs too high for a rabbit to reach. Rabbits can feed fairly high because they can walk on top of crusted snow. A closer look at the damage will tell the true culprit. A rabbit has teeth on top and bottom therefore will neatly cut a stem in two. A deer has no upper teeth so it bites neatly through most of a stem but always leaves a jagged edge.

The muskrat is completely at home in the Preserve because of the extensive amount of water. It is the only animal with a vertically flattened tail which it uses as a rudder. Muskrat homes resemble Beaver lodges but are made of non-woody



Cottontail Rabbit

material. At times there are no muskrat homes in evidence in the Preserve, which indicates that they are living in holes in the banks of the streams and ponds.

Muskrat

the shelter of some aquatic vegetation. Several species of ducks occur in the ponds and streams but are usually frightened out quickly by too much human disturbance. Among the most regular are the Mallard, Black Duck, American Widgeon, Green-winged Teal and the Ring-necked Duck but additional species are frequently found on nearby Great Pond (Wildwood Lake). The slate-colored, white-billed, duck-like American Coot also frequents the bog ponds.

Only two species of heron are regular at the bog but others may drop in rarely. The little Green Heron nests in the vicinity and may be found from May to September around the pond margins or along a ditch, patiently awaiting the movement of an unlucky minnow or frog. The Great Blue Heron is most likely in the spring and fall months but is one of our wildest birds and can seldom be approached closely. Years ago, the rare and secretive Least Bittern apparently bred in the marsh but no recent records are known.

The bog area is not choice habitat for most shore birds but migrating Spotted

Red-winged Blackbird

and Solitary Sandpipers may be found in May and again in August and September probing the muddy shallows and teetering in their characteristic fashion. The long-billed, big-eyed Woodcock breeds locally and may be heard giving its flight song on warm, spring evenings. Individuals often remain until late in the fall but feed mostly at night and, blend in so well with the dead leaves among which they rest by day that one will seldom flush until nearly stepped on. The Common Snipe, a more northern relative, drops in to the marshy areas during its spring and fall migrations and a bird or two often winters if the ditches do not freeze completely. Both the Sora and Virginia Rail have also been found in winter at stretches of open water. The latter probably breeds in the bog but these secretive birds are hard to detect so proof is lacking.

Other water birds seen in the area are mostly flying over and have no real relationship to the bog. Gulls and Terns of several species, Canada Geese, Mute Swans, Common Loons and Double-crested Cormorants may all be seen overhead at the appropriate season.

Nearly any of the Long Island hawks may be seen at the bog but none is common or closely tied to the area. The Red-tailed Hawk breeds in the oak and pine woods to the south and the Broad-winged Hawk in the thicker stands along the Peconic River. Both occasionally fly over the bog searching for mice or other small mammals. Passing Ospreys and Marsh Hawks still occur but less often as their numbers decline yearly. The brightly-colored, little Sparrow Hawk is the most common of its group but is still rather infrequent at the bog.

The most common breeding song birds of the area are the Red-winged Blackbird, Song Sparrow, Yellowthroat and Catbird, all well-known and generally distributed species. Others frequently found in summer are the Mourning Dove, Yellow and Black-billed Cuckoos, Chimney Swift, Yellow-shafted Flicker, Eastern Kingbird, Tree and Barn Swallows, Purple Martin, Blue Jay, Crow, Black-capped Chickadee, Brown Thrasher, Robin, Wood Thrush, Starling, Red-eyed Vireo, Yellow Warbler, Common Grackle, Cowbird, Cardinal, American Goldfinch, Rufous-sided Towhee and Chipping Sparrow. Other, less common species may also nest in the area but no careful census has yet been taken.

During migration periods, nearly any land bird found elsewhere on Long Island is possible here except the open field species. Often seen are the Belted Kingfisher, Eastern Phoebe, Brown Creeper, Winter Wren, Golden and Ruby-crowned Kinglets, a variety of warblers and the Rusty Blackbird. In winter, the list is smaller but usually includes the Downy and Hairy Woodpeckers, White and Red-breasted Nuthatches, Slate-colored Junco,

during late summer; most do not require sunlight.

There are at least three species of leeches that commonly occur in the bog (the bloodsucking leech could not be identified). Leeches can crawl in an inch-wormlike fashion; when not in motion the leeches attach to the substrata by one or both suckers. The bloodsucking leeches make an incision into the surface of the host, and begin sucking blood. Upon leaving the host, the leech injects an anticoagulant into the wound which preserves the blood in the leech (some have been known to live for over a year on one blood meal) but leaves the host bleeding.

The freshwater algae of the bog were surveyed to determine the most common species. Two of the algae collected were quite beautiful. These two algae are of the genus Micrasterias. They both resemble snowflakes; one is oval shaped and the other is square. The latter occasionally attaches in colonies, forming false filaments. This species is generally found in acid water ponds such as the Cranberry Bog.

Fish of the Cranberry Bog Preserve

by James Romansky

The fish were censused by seining Sweezy Pond, outlet stream and drainage ditches of the bog. The ecology of each area is different. Sweezy Pond is fairly shallow, therefore warm and probably not well oxygenated. The principal vegetation is pondweed, spadderdock, bladderwort and aquatic moss. The outlet stream is cooler due to the overhanging trees and because it drains the bog. Due to the temperature and the water movement in the stream the oxygen concentration is probably greater than Sweezy Pond. Aquatic mosses, bladderwort and milfoil are found here. The water of the drainage ditches in the bog is cool and shallow. Since it is a bog, the water is probably acid and without oxygen.

Fifteen species of fish were found in the Preserve. Chubsuckers, common sunfish, bridled shiners and pickerel were found in both the lake and stream. Catfish, bass and Johnny darters were found in the stream only. Sunfish, golden shiners, and eels were only found in the pond. The only fish found in the drainage ditches of the bog was the banded sunfish pickerel.

There are many jobs to be filled by the animals and plants in nature. This is called their ecological niche. The most common fishes in the Preserve are the small minnows and shiners. Their niche is probably to serve as food for the bass, perch and pickerel. The bridled minnow is the most common fish present. Thousands are found in the holding pond. These are silver with a black lateral stripe. The chubsucker and immature golden shiner appear similar, but the round sucker mouth is evident in the chubsucker and the heavier body identifies the golden shiner. Perhaps since there is safety in numbers these heavily preyed upon species resemble each other for protection.

The niche of the bass, pickerel and perch is to be the higher carnivores of the water. They prey on unsuspecting smaller fish, frogs, insects and even birds.These carnivores help to maintain the population levels of prey species. The populations of the carnivores are maintained by feeding on the young of other predators. Some are cannibals, feeding on their own kind.

The common sunfish are responsible for the light colored depressions evident along the shallow areas of Sweezy Pond. They are carnivores also but feed on smaller animals such as insects and worms.

The brown catfish or bullhead is the garbageman of the fish world. It feeds on debris which has fallen to the bottom. One must be careful when picking up this fish since it has spines in its dorsal and pectoral fins that can inflict painful punctures.

Perhaps the strangest fish in the Preserve is the eel. It spends part of its life in salt water and comes back to the fresh waters of the Preserve. Eels have even been known to "swim" over wet meadows during their migrations.

The mudminnow, rock bass, and white and yellow perch were not found by the authors, however they were found by the New York State Department of Environmental Conservation in this drainage area.

Amphibians of the Cranberry Bog Preserve

by William Christopher

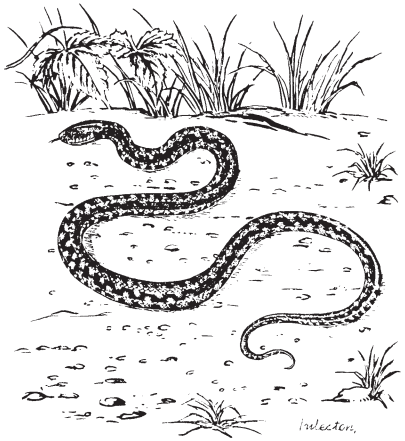
For most of us, the coming of spring means the blooming of crocuses, tulips and daffodils. In a bog, spring comes before any flowers have bloomed. It comes when ice still lingers on the ponds, and the ground still may contain patches of encrusted winter snow. To the most primitive group of land vertebrates, spring arrives with the first warm rain. As the drops penetrate into the earth, the amphibian begins to stir. Spring has come. It is time to find water—time to ensure the survival of the species. Like the newly hatched sea turtle, the salamander and the frog move blindly toward their destiny. Although not a common sight, on occasion persons out driving at night during the first spring rain will look aghast at the roadway as the drops seem to hop across the road in front of them. An inspection the next morning will reveal the masses of casualties flattened on the pavement as they migrated to their breeding pond or stream.

The Cranberry Bog provides the amphibian with an ideal habitat for breeding. The quiet waters and holes are exactly what the frog, toad and salamander need to complete their life cycle. The first to find its way to the water is the large spotted salamander. Up to five inches in length, this black amphibian with its golden yellow spots shining before the glare of an observer's headlamp, will crawl into the ponds through cracks in the ice at its border. For a few short weeks it will come to the pond each night, mating and laying its egg masses. Then, as quietly as it appeared it will return to its home beneath the earth to await another spring. As the spotted salamander is quietly completing its mating journey, the first frogs appear in the bog. Very small in size, and extremely well camoflaged, the spring peeper begins its chorus with surprising volume. Though less than an inch across, the voice of these remarkable animals can be heard echoing everywhere in the bog and the surrounding woodland. The coming of spring in the amphibian world begins in earnest. The green frog adds its voice to the evening chorus. The grass and pickerel frogs soon follow. Finally the sound of a guitar being plucked can be heard deep in the bog. The giant northern bull frog has announced his emergence. Not to be outdone by the abundant frog population early in spring, the Fowler's toad with its high-pitched mating call attempts to drown out the voices of its relatives. Seemingly undisturbed by the intense noise around them, the red-backed salamander, the dusky salamander and the color variant of the red-backed, the lead-backed, salamander inconspicuously satisfy their instincts to increase their populations. The season is short for the amphibian. Many of its breeding ponds dry up with the summer sun and heat. Its tadpoles are quick to develop and leave the ponds for their secretive life beneath the ground. Two notable exceptions are the bullfrog and the green frog. They breed in the deeper ponds and their large tadpoles take as long as three years to transform into an adult frog. We also find an exception among the salamanders. The common newt has two phases in its life cycle. On land it is a brilliant red or orange creature living among the leaf litter of the woods. As it returns to the water to breed its tail broadens and it takes on a spotted dull green appearance to live out its time in the Bog ponds and water ways. To the observers of nature, spring must come early if the amphibian world is to be seen and appreciated at its busiest time of year.

Reptiles of the Cranberry Bog Preserve

by William Christopher

As the spring sun begins to warm the ground and the waters of the bog, the reptile awakens from his long winter beneath the mud or earth. Although reptiles are a secretive group, a persistant naturalist is soon aware of their presence. Along the pond margins, water snakes up to four feet long slowly slither through the water in search of some unsuspecting frog or toad. At night the hognose snake prowls the sandy areas, ready to snap up his favorite meal, the Fowler's toad. The garter and milksnake move quietly through the woodlands and meadows in search of small mice or worms. The snakes of the bog are predators. They are one thread in a complex food web which relies on all species to provide for the continuance of life in the bog. In the water the turtles play their role as predators. Musk turtles with their conspicuous odor rarely leave the water as they search the mud for aquatic nymphs and insect larva. Painted turtles can be seen sunning themselves on exposed logs in the afternoon sun. Seemingly asleep on their perch the turtles instantly leap to the safety of the water and mud at the slightest hint of danger. In the deep waters of the ponds one may find the algae-covered snapping turtle slowly prowling just below the surface ready to devour a young duckling. Though reptiles in our bog avoid man at all costs, the bog community is well aware of their presence. Their silent stalking and lightning strike take their toll of bog inhabitants as the struggle for existence continues in the natural world of the bog environment.



Garter Snake

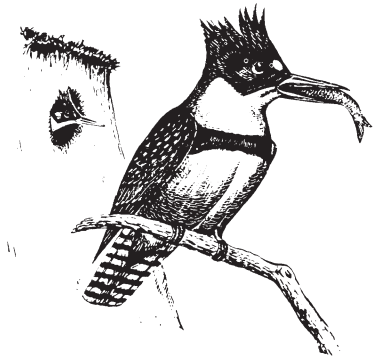
Birds of the Cranberry Bog Preserve

by Gilbert Raynor

Although the Cranberry Bog Preserve is best known for its unique flora, many of the birds that occur on Long Island can be found there at the proper seasons; a few species that are uncommon elsewhere occur there regularly. Among these is the most beautiful of all North American waterfowl, the Wood Duck, which may be found from April through October on the ponds in the bog and occasionally, in winter, along the nearby Peconic River. This duck nests in hollow trees, sometimes quite far from water, but the newly-hatched young are quickly led to the nearest pond or stream and broods of downy ducklings are sometimes seen during the summer months.

The Ruffed Grouse, now rare and local on Long Island, still persists in the woods surrounding the bog and is sometimes seen along the highway south of the County Center. If not there, one can best record this splendid upland game bird by flushing one from a wooded thicket or by listening, in spring, for the low-pitched drumming of the male. Another bird which is more often heard than seen is the Great Horned Owl. This, our largest owl, still resides in the area and feeds mainly on rabbits, thus keeping their numbers in check. This owl, however, would disregard neither the Wood Duck nor the Grouse if either were unfortunate enough to be detected by this silent-winged, nocturnal predator.

Other birds attracted to the open-water areas include the Pied-billed Grebe (commonly called Hell-diver) which controls its buoyancy and can swim with most of its body or with only its head above water. When frightened, it remains submerged, only protruding its nostrils for periodic breaths of air and then usually in



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