

January 16, 1995

SWITZKILL NATURAL AREA REPORT
(revised from October 5, 1992)

An Inventory with background, analysis
and recommendations

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For: Berne Conservation Board

INTRODUCTION

This report was written to provide the reader with an appreciation of, a growing concern with, and an on-going sense of stewardship for the wetland complex the Berne Conservation Board has named the “Switzkill Natural Area.” The name was approved by the Berne Town Board when the original report was submitted in 1992. This complex is not new; it has been here at least since the last glacial epoch, some 10,000 years ago. It is dynamic, however, having been altered many times through the years by activities of man and animals, particularly beavers, in addition to acts of God. What made an assessment of the property necessary in 1992 was its acquisition by the Town of Berne. While this wetland complex will continue to change over time, providing varying habitats for both plants and animals, a water recharge area for West Berne and a natural filtering system for runoff from nearby West Mountain, people in the area now have a unique opportunity to entertain and educate themselves regarding the evolutionary process of a wetland ecosystem. With that thought in mind, the Berne Conservation Board undertook an inventory to provide a documented base for looking at integral parts of this wetland system. From the original analysis of the inventory a program was developed containing recommended steps to preserve the area while allowing for study, education and entertainment of a priceless natural heritage from which all interested persons can benefit. This report updates information in the original and includes a more complete list of biota (Appendix A).

BACKGROUND

Physiography

One does not have to look far to realize that a wide variety of terrain exists in the Hilltowns, including Berne. All of the Hilltowns lie in the Helderberg Plateau, part of the Appalachian Plateau, which in early geologic history may well have been flat. As a result of shifting of the earth's crust from internal heat and pressure, upthrust occurred which tilted the rock strata in the Helderberg Plateau slightly to the southwest. Hence we have a drainage system in the Helderbergs which flows generally from northeast to southwest into the Schoharie Creek via the Foxenkill and Switzkill.

Underlying rock, including Devonian shale (one form of which is Helderberg Bluestone), is prominent in the eastern and southern parts of the Town, while limestone predominates in the north and west. Much of the Town is underlain with several hundred feet of solid bedrock composed of shale or limestone. Soils are shallow in the mountains, but a stratified drift has shifted surficial soils into outwash plains along major river courses, including the Switzkill. Much more detail of area historical geology can be found in “Geology of the Berne Quadrangle,” New York State Museum Bulletin 303, 1935, by Winifred Goldring.

This geological evolution provided the setting for the outwash plain in the lower Switzkill drainage just upstream from its confluence with the Foxenkill. This plain is particularly dynamic because of the shift over time in the stream channel resulting from spring runoff and floods. Senior citizens of the Town can recall a number of times when the entire lower Switzkill valley was flooded. Flood waters rapidly recede after storms,

but in depressions with little or no drainage the water remains to form swamps or wetlands. The wetland at the base of West Mountain which extends north to the Switzkill has undoubtedly existed in one form or another since the Wisconsin glacier some 10,000 years ago. Its size and shape have changed over the years as the Switzkill changed course, drainage ditches were made by man and beavers impounded additional areas for their specific use.

The current wetland which the New State Department of Environmental Conservation identified in 1975 as RE-4 was determined to contain 38 acres at the time. It is one of six alluvial wetlands in the confluence zone of the Foxenkill and Switzkill drainages.

Biology

Flora: The Helderberg Plateau lies in the northern hardwood forest zone. Dominant tree species are American beech, birches, maples, white pine and eastern hemlock. Major cover species in the wetland are white and green ash, red maple, white pine and hemlock. Significant shrub cover includes arrowwood, red-osier dogwood, silky dogwood, hardhack and shrub willow. Other major species include sedges, horse rush and sensitive fern. Six major cover types were identified on the property in 1992. Those cover types are delineated on the attached map and a species list with both common and scientific names for each cover type is found in Appendix A. Unique species, though not necessarily rare, are mossy cup or burr oak in Type 3, buttonbush in Type 4 and 5, spicebush in Type 5 and mountain holly and purple fringed orchid in Type 6.

Fauna: A wide variety of animals and birds are found on the property. A preliminary list is given in Appendix A by individual cover type. Mammals include white-tailed deer, eastern coyote, red and gray fox, raccoon (which was severely decimated along with red foxes during a rabies epidemic in 1993-94), opossum, beaver, muskrat, mink, otter, skunk, cottontail rabbit, deer mice, meadow voles and the short-tailed shrew. Furbearers in this group which have been trapped periodically over the past two centuries include the beaver, muskrat, mink and otter. For a history of furbearer take by trappers see "An inventory of forest and wildlife resources in the Town of Berne" in the Town Hall. Birds include a plethora of wetland, shrub and field species. Chief among the wetland species is the great blue heron which has had a maximum of 17 nests, not all of which are active in any given year. Also present are wood ducks, black ducks, mallards and green herons. Red-winged blackbirds, robins, song sparrows, yellow and chestnut-sided warblers and crows are all common. Game birds include wild turkey, grouse and woodcock. A number of passerine birds undoubtedly use the site during spring and fall migrations and several nests on-site throughout the summer. Resident species include the crow, bluejay, chickadee, white and red-breasted nuthatches, hairy and downy woodpeckers, mourning dove and rock dove (pigeons). Amphibians include spring peepers, green frogs, bull frogs and gray tree frogs. A number of other amphibians and reptiles are undoubtedly present but have not been documented to-date.

Human Settlement

The Town of Berne was settled in 1750 by several Swiss families. A general account is given in Our Heritage, prepared by Berne Bicentennial commission as part of the 1976 bicentennial celebration. The Dietz and Ball families were the first to settle the Switzkill Valley. West Mountain was settled by the Schultes family which received a grant of 400 acres in 1787. The descendants of these families remain to this day, although the large grants have been subdivided and sold to newcomers. The current parcel was deeded to John Dunbar sometime prior to 1860. It subsequently was owned by Isaac Wilday (161), James Wright (1895), Luther and Bessie Wright and Robie Jones (1929), Jessie and Robie (1947), Leopold and Mary Salzer (1960), Keith and Joyce Harvey (19--), Anthony and Patricia Spadaro (1972) and finally by Katherine Baitsholts (1988).

ACQUISITION

In 1992, this tract of 32.9 acres was purchased for \$32,000 by Iroquois Gas Transmission System and granted to the Town in conjunction with the construction of a natural gas transmission line through the Town. The gas line skirts the east side of the Switzkill Valley. Under the purchase/grant, the Town is obligated to retain this parcel as conservation land in perpetuity.

INVENTORY

In order to develop a basis for managing this property, the Town needed a resource inventory. This inventory was completed by the Berne Conservation Board in the spring of 1992 and updated in 1994. It includes a documentation of the water resources; an impounded wetland and stream which flows into the Switzkill (Figure 1). Also included are soils which are taken from the Berne Soils Inventory completed by the Albany County Soil and Water Conservation District in 1980; and the flora and fauna surveys conducted in the spring of 1992. The location of cover types, drainage and presence of unique flora and fauna are the basis for the recommendations set forth below.

RECOMMENDATIONS

Since the Town's mandate in accepting this property from the Iroquois Gas Transmission System is to retain it in conservation land, the following recommendations are toward that end. An additional requirement was that a sign be installed along Sickle Hill Road recognizing Iroquois as the benefactor.

1. An inventory of natural resources should be made and updated every 5 years as a basis for developing and revising the maintenance plan.
2. A sign should be installed along Sickle Hill Road; naming the area, giving the name of the Town and recognizing Iroquois Gas Transmission System as the grantor. This was accomplished in 1993.
3. A shale parking lot installed near the entrance of the area along the existing shale road, large enough to accommodate 10-12 cars (15' X 35'). This was completed by the Town Highway Department in the fall of 1993.

4. A weatherproof kiosk be installed to store a register for users and an educational flyer. The kiosk was installed in the spring of 1994 along with an educational pamphlet rack. An educational flyer was developed in 1994 and a supply of pamphlets is in place in the rack. The register will be installed in the spring of 1995.
5. Develop and post on-site regulations. This was also accomplished by the Conservation Board in 1994.
6. Develop a trail system to allow visitors to see all six cover type units while reducing, to the extent possible, impact to the heron rookery. This trail will need to be raised in its entirety due to the wet nature of the ground, even in summer. Shale, covered by excelsior and bordered by logs, would probably work best. At least one bridge will be needed across the on-site stream (see Figure 1). A possible trail system which would minimize impact to the heron rookery is depicted by the dotted line in Figure 1. Installation of the trail is on hold pending an evaluation of use over the next few years. The register should prove helpful in this regard. Signs have been installed about 300 feet back from the heron rookery to warn users to stay out during the nesting season.
7. Long term maintenance:
 - a) the access road and trails (if built) will require reshaling as needed in cooperation with the Town Highway Department.
 - (b) signs and the kiosk should be kept in good repair and filled with supplies by the Berne Conservation Board.
 - (c) the bridge and footpaths (if constructed) will need annual inspection and repair as necessary by the Berne Conservation Board and volunteers.
 - (d) cover unit 1 should be mowed at least once annually to maintain the grass and forb cover. The Albany County Highway Department has agreed to do this when they mow along Sickle Hill Road in late summer. A member of the Berne Conservation Board will remind them in mid-summer.
 - (e) Cover unit 2 will require removal of trees about every 5 years to retain a shrub cover and maintain visibility into the wetland proper. Trees can be cut by chain saw, piled as needed and stumps treated with an herbicide registered for wet areas. Work will be carried out under the supervision of the Berne Conservation Board by volunteers.

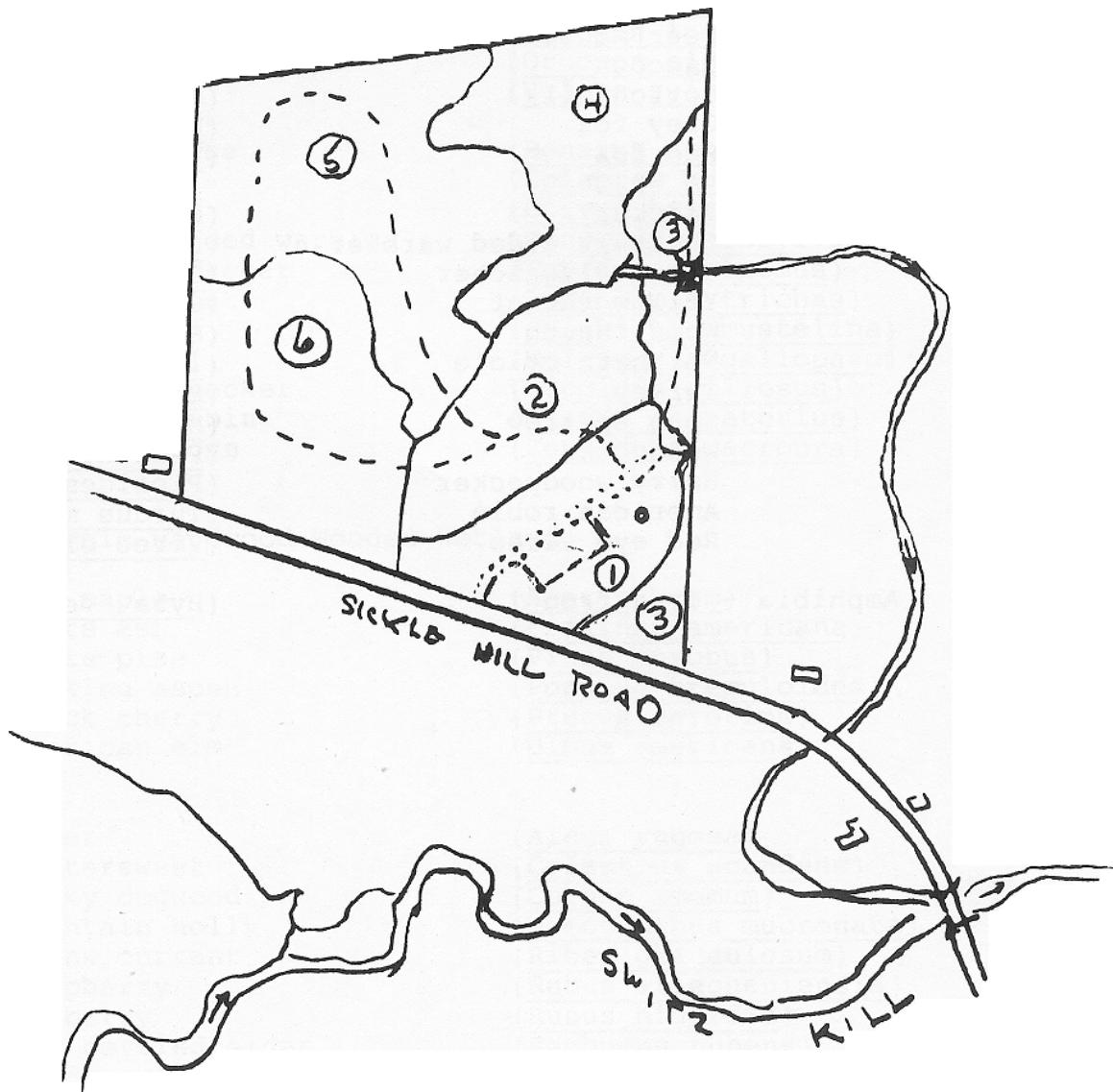


Figure 1

APPENDIX A

A List of Identified Flora and Fauna by Defined Vegetation Cover Types within the Switzkill Natural Area

Cover Type 1 – Grass/forb meadow

Flora

Trees – White Ash	(<u>Faxinus americana L.</u>)
Shrubs – Smooth Juneberry, Shadbush Silky dogwood Red-osier Dogwood Gray stemmed Dogwood Hardhack, Meadow Sweet	(<u>Amelanchier arborea Fern.</u>) (<u>Cornus amomum Mill.</u>) (<u>Cornus sericea L.</u>) (<u>Cornus rugosa Lam.</u>) (<u>Spirea latifolia Borkh.</u>)
Grasses – Redtop Poverty Grass Smooth Brome Orchard Grass Timothy Canada Bluegrass Foxtail	(<u>Agrostis gigantea Roth</u>) (<u>Aristida dichotoma Michx.</u>) (<u>Bromus inermis Leyss</u>) (<u>Dactylis glomerata L.</u>) (<u>Phleum pratense L.</u>) (<u>Poa compressa L.</u>) (<u>Setaria glauca L.</u>)
Sedges – Sedge Sedge Sedge Sedge Sedge Wool Grass Bulrush	(<u>Carex cristatella Britt.</u>) (<u>Carex hirsutella Mackz.</u>) (<u>Carex lupulina Muhl.</u>) (<u>Carex pallescens L.</u>) (<u>Carex vulpinoidea Muhl.</u>) (<u>Scirpus cyperinus Kunth</u>) (<u>Scirpus hattorianus Mak.</u>)
Forbes – Ragweed Milkweed New England Aster Purple Stemmed Aster Small White Aster Panicled Aster Tradescant's Aster Wild Mustard Brown Spotted Knapweed Chickweed Thistle Wild Carrot, Queen A. Lace Fireweed	(<u>Ambrosia artemisiifolia L.</u>) (<u>Asclepius syriaca L.</u>) (<u>Aster novae-angliae L.</u>) (<u>Aster puniceus L.</u>) (<u>Aster vimineus Lam.</u>) (<u>Aster simplex L.</u>) (<u>Aster tradescanti L.</u>) (<u>Brassica sp.</u>) (<u>Centaurea maculosa Lam</u>) (<u>Cerastium arvense L.</u>) (<u>Circium sp.</u>) (<u>Caucus carota L.</u>) (<u>Epilobium angustifolium</u>)

Strawberry	(<i>Fragaria</i> sp.)
Bed-straw	(<i>Galium asprellum</i> Michx.)
Yellow Avens	(<i>Geum allepicum</i> Jacq.)
St. Johns Wort	(<i>Hypericum punctatum</i> Lam)
Daisy	(<i>Leucanthemum vulgare</i> Lam)
Lobelia	(<i>Lobelia</i> sp.)
Birdsfoot Trefoil	(<i>Lotus corniculatus</i> L.)
Bugle Weed	(<i>Lycopus americanus</i> Muhl.)
Parsnip	(<i>Pastinaca sativa</i> L.)
Forked Chickweed	(<i>Paronychia fastigiata</i> Fer)
Climbing False Buckwheat	(<i>Polygonum scandens</i>)
Tear Thumb	(<i>Polygonum sagitatum</i> L.)
Black-eyed Susan	(<i>Rudbeckia hirta</i> L.)
Canada Goldenrod	(<i>Solidago canadensis</i> L.)
Late Goldenrod	(<i>Solidago gigantea</i> Ait.)
Lance-leaved Goldenrod	(<i>Solidago graminifolia</i>)
Early Goldenrod	(<i>Solidago juncea</i> Ait.)
Rough Stemmed Goldenrod	(<i>Solidago rugosa</i> Mill.)
Dandelion	(<i>Taraxacum officinale</i> Web)
Red Clover	(<i>Trifolium pratense</i> L.).
Purple Vervain	(<i>Verbena hastata</i> L.)
Vetch	(<i>Vicia americana</i> Muhl.)

Ferns – Sensitive Fern

(*Onoclea sensibilis* L.)

Fauna

Mammals – Shortail Shrew
Meadow Vole

(*Blarina brevicauda*)
(*Microtus pennsylvanicus*)

Birds - Red winged Blackbird
Common Crow
Bobolink
American Kestrel
Meadow Lark
American Robin

(*Agelaius phoeniceus*)
(*Corvus brachyrhuncchos*)
(*Dolichonyx oryzivorus*)
(*Falco sparverius*)
(*Sturnella magna*)
(*Furdos migratorius*)

Cover Type 2 – Wet Shrub Meadow

Flora

Trees - Red Maple
Juneberry, Shadbush
White Ash
White Pine
Black Cherry

(*Acer rubrum* L.)
(*Amelanchier laevis* Ahle)
(*Fraxinus americana* L.)
(*Pinus strobus* L.)
(*Prunus serotina* Ehrh)

Shrubs - Silky Dogwood	(<u><i>Cornus amomum</i></u> Mill)
Grey Stemmed Dogwood	(<u><i>Cornus rugosa</i></u> Lam)
Red-osier Dogwood	(<u><i>Cornus sericea</i></u> L.)
Chockcherry	(<u><i>Prunus virginiana</i></u> L.)
Willow	(<u><i>Salix</i></u> sp.)
Hardhack, Meadow Sweet	(<u><i>Spirea latifolia</i></u> Borkh)
Hardhack, Steeple-bush	(<u><i>Spirea tomentosa</i></u> L.)
Multiflora Rose	(<u><i>Rosa multiflora</i></u> Thunb)
Dewberry	(<u><i>Rubus hispida</i></u> L.)
Arrowwood	(<u><i>Viburnum dentatum</i></u> L.)
Nannyberry	(<u><i>Viburnum lentago</i></u> L.)
Grasses – Redtop	(<u><i>Agrostis gigantea</i></u> Roth)
Blue Joint Grass	(<u><i>Calamagrostis canadensis</i></u> Beauv.)
Timothy	(<u><i>Phleum pratense</i></u> L.)
Canada Bluegrass	(<u><i>Poa compressa</i></u> L.)
Sedges – Sedge	(<u><i>Carex cristatella</i></u> Britt.)
Sedge	(<u><i>Carex hirsutella</i></u> Mackz.)
Sedge	(<u><i>Carex lupulina</i></u> Muhl.)
Sedge	(<u><i>Carex pallescens</i></u> L.)
Sedge	(<u><i>Carex vulpinoidea</i></u> Michx.)
Tussock Sedge	(<u><i>Carex stricta</i></u> Lam)
Wool Grass	(<u><i>Scirpus cyperinus</i></u> Kunth)
Bulrush	(<u><i>Scirpus hattorianus</i></u> Mak.)
Forbes – Spreading Dogbane	(<u><i>Apocynum androsaemifolium</i></u> L.)
Milkweed	(<u><i>Asclepias syriaca</i></u> L.)
Flat-topped Aster	(<u><i>Aster umbellatus</i></u> Mill)
Wild Mustard	(<u><i>Brassica</i></u> sp.)
Thistle	(<u><i>Cirsium</i></u> sp.)
Wild Carrot, Queen A. Lace	(<u><i>Caucus carota</i></u> L.)
Joe Pye Weed	(<u><i>Eupatorium dubium</i></u> Willd)
Boneset	(<u><i>Eupatorium hyssopifolium</i></u> L.)
Strawberry	(<u><i>Fragaria</i></u> sp.)
Bed-straw	(<u><i>Galium asprellum</i></u> Michx.)
Canada St. Johns Wort	(<u><i>Hypericum canadense</i></u> L.)
Birdsfoot Trefoil	(<u><i>Lotus corniculatus</i></u> L.)
Mint	(<u><i>Mentha arvensis</i></u> L.)
Bitter Milkwort	(<u><i>Polygala sanguinea</i></u> L.)
Mint	(<u><i>Prunella vulgaris</i></u> L.)

Black-eyed Susan	(<u>Rudbeckia hirta L.</u>)
Tall Goldenrod	(<u>Solidago canadensis</u> var. <u>altissima</u> L.)
Early Goldenrod	(<u>Solidago juncea</u> Ait.)
Lance-leaved Goldenrod	(<u>Solidago graminifolia</u>)
Early Goldenrod	(<u>Solidago juncea</u> Ait.)
Rough Stemmed Goldenrod	(<u>Solidago rugosa</u> Mill.)
Dandelion	(<u>Taraxacum officinale</u> Web)
Blue Vervain	(<u>Verbena hastata</u> L.)
Vetch	(<u>Vicia americana</u> Muhl.)
Vetch	(<u>Vicia sativa</u> var. <u>angustifolia</u> L.)

Fauna

Mammals – Shortail Shrew	(<u>Blarina brevicauda</u>)
Meadow Vole	(<u>Microtus pennsylvanicus</u>)
Birds - Red winged Blackbird	(<u>Agelaius phoeniceus</u>)
Common Crow	(<u>Corvus brachyrhynchos</u>)
Bobolink	(<u>Dolichonyx oryzivorus</u>)
American Kestrel	(<u>Falco sparverius</u>)
Meadow Lark	(<u>Sturnella magna</u>)
American Robin	(<u>Turdus migratorius</u>)
Insects - White-lined Sphinx Moth	(<u>Celerio lineata</u>)
Monarch	(<u>Danaus plexippus</u>)

Cover Type 3 – Mixed Sapling Woods

Flora

Trees - Red Maple	(<u>Acer rubrum</u> L.)
Juneberry, Shadbush	(<u>Amelanchier laevis</u> Ahle)
Hawthorne	(<u>Crataegus</u> sp.)
White Ash	(<u>Fraxinus americana</u> L.)
Red Ash	(<u>Fraxinus pennsylvanica</u> Marsh)
Iron Wood, Hornbeam	(<u>Ostrya virginiana</u> Koch)
White Pine	(<u>Pinus strobus</u> L.)
Quaking Aspen	(<u>Populus tremuloides</u> Michx.)
Black Cherry	(<u>Prunus serotina</u> Ehrh.)
Mossy cup or Burr Oak	(<u>Quercus macrocarpa</u> Michx.)
American Elm	(<u>Ulmus americana</u> L.)

Shrubs – Alder	(<u><i>Alnus rugosa</i></u> L.)
Silky Dogwood	(<u><i>Cornus amomum</i></u> Mill)
Beaked Willow	(<u><i>Salix bebbiana</i></u> Sarg)
Common Elder	(<u><i>Sambucus canadensis</i></u> L.)
Swamp Dewberry	(<u><i>Rubus pubescens</i></u> Rat)
Arrowwood	(<u><i>Viburnum dentatum</i></u> L.)
Nannyberry	(<u><i>Viburnum lentago</i></u> L.)
Grasses – Reed Meadow Grass	(<u><i>Glyceria grandis</i></u> Wats)
Fowl Manna Grass	(<u><i>Glyceria striata</i></u> Hitchc)
Sedges – Sedge	(<u><i>Carex baileyi</i></u> Britt)
Sedge	(<u><i>Carex cristatella</i></u> Britt)
Tussock Sedge	(<u><i>Carex stricta</i></u> Lam)
Forbs - Cowslip	(<u><i>Caltha palustris</i></u> L.)
Joe Pye Weed	(<u><i>Eupatorium dubium</i></u> Willd)
Hemp nettle	(<u><i>Galeopsis tetrahit</i></u> L.)
Bristly Buttercup	(<u><i>Ranunculus pensylvanicus</i></u> L.)
Common Saxifrage	(<u><i>Saxifraga virginiana</i></u> Michx)
Hellebore, Indian Poke	(<u><i>Veratrum viride</i></u> Ait)
Ferns - Sensitive Fern	(<u><i>Onoclea sensibilis</i></u> L.)
Rush - Common Horsetail	(<u><i>Equisetum arvense</i></u> L.)
Fauna	
Mammals – Short-tailed Shrew	(<u><i>Blarina brevicauda</i></u>)
Beaver	(<u><i>Castor canadensis</i></u>)
White-tailed Deer	(<u><i>Odocoileus virginianus</i></u>)
Deer Mouse	(<u><i>Peromyscus maniculatus</i></u>)
Cottontail Rabbit	(<u><i>Sylvilagus flordanus</i></u>)
Birds - Red wing Blackbird	(<u><i>Agelaius phoeniceus</i></u>)
Red tailed Hawk	(<u><i>Buteo jamaicensis</i></u>)
Wood Peewee	(<u><i>Contopus virens</i></u>)
Yellowthroat	(<u><i>Geothlypis trichas</i></u>)
Least Flycatcher	(<u><i>Empidonax minimus</i></u>)
Wood Thrush	(<u><i>Hylocichla mustelina</i></u>)
Northern Oriole	(<u><i>Icterus galbula</i></u>)
American Robin	(<u><i>Turdus migratorius</i></u>)
Amphibia –Tree Frog	(<u><i>Hyla versicolor</i></u>)
Bull Frog	(<u><i>Rana catesbeiana</i></u>)
Green Frog	(<u><i>Rana pipiens</i></u>)

Cover Type 4 – Shrub Wetland

Flora

Trees – Red Maple	(<u>Acer rubrum L.</u>)
Alder	(<u>Alnus incana L.</u>)
Yellow Birch	(<u>Betula allegheniensis Britt</u>)
Green Ash	(<u>Fraxinus pennsylvanica Marsh</u>)
Shrubs - Alder	(<u>Alnus incana L.</u>)
Button Bush	(<u>Cephalanthus occidentalis L.</u>)
Red-osier Dogwood	(<u>Cornus sericea L.</u>)
Mountain Holly	(<u>Nemopanthus mucronatus L.</u>)
Common Elder	(<u>Sambucus canadensis L.</u>)
Meadow Sweet	(<u>Spirea latifolia Berkh</u>)
Grasses – Tickle Grass	(<u>Agrostis hiemalis Bsp</u>)
Blue Joint Grass	(<u>Calamagrostis canadensis L.</u>)
Manna Grass	(<u>Glyceria acutiflora Torr</u>)
Cut Grass	(<u>Leersia oryzoides L.</u>)
Reed Canary Grass	(<u>Phalaris arundinacea L.</u>)
Sedges - Sedge	(<u>Carex baileyi Britt</u>)
Sedge	(<u>Caris intumescens Rudge</u>)
Sedge	(<u>Carex lacustris Willd</u>)
Tussock Sedge	(<u>Carex stricta Lam</u>)
Spike Rush	(<u>Eleocharis engelmanni Steud</u>)
Soft Rush	(<u>Juncus effusus L.</u>)
Great Bulrush	(<u>Scirpus tabernaemontanii Gmel</u>)
Forbs - Water Parsnip	(<u>Berula erecta Cov</u>)
Water Hemlock	(<u>Cicuta bulbifera L.</u>)
Joe Pye Weed	(<u>Eupatorium dubium Willd</u>)
Jewel Weed	(<u>Impatiens capensis Meerb</u>)
Blue Flag Iris	(<u>Iris versicolor L.</u>)
Duck Weed	(<u>Lemna minor L.</u>)
Marsh Purslane	(<u>Ludwigia palustris L.</u>)
Monkey Flower	(<u>Minulus ringens L.</u>)
Stone Crop	(<u>Penthorum sedoides L.</u>)
Bitter Dock	(<u>Rumex obtusifolius L.</u>)

Fauna

Mammals – Beaver	(<u>Castor canadensis</u>)
Otter	(<u>Lutra canadensis</u>)
Mink	(<u>Mustela vison</u>)

White-tailed Deer	(<u>Odocoileus virginianus</u>)
Muskrat	(<u>Ondatra zibethica</u>)
Birds - Red wing Blackbird	(<u>Agelaius phoeniceus</u>)
Wood Duck	(<u>Aix sponsa</u>)
Mallard Duck	(<u>Anas platyrhynchos</u>)
Black Duck	(<u>Anas rubripes</u>)
Great Blue Heron	(<u>Ardea herodias</u>)
Green Heron	(<u>Butorides striatus</u>)
Chestnut-sided Warbler	(<u>Dendroica pensylvanica</u>)
Catbird	(<u>Dumetella carolinensis</u>)
Barn Swallow	(<u>Hirundo rustica</u>)
King Fisher	(<u>Megacyrle alcyon</u>)
Black Capped Chickadee	(<u>Parus atricapillus</u>)
Downy Woodpecker	(<u>Picoides pubescens</u>)
Hairy Woodpecker	(<u>Picoides villosus</u>)
Chipping Sparrow	(<u>Spizella passerina</u>)
Amphibia –Peeper	(<u>Hyla crucifer</u>)
Tree Frog	(<u>Hyla versicolor</u>)
Bull Frog	(<u>Rana catesbeiana</u>)
Green Frog	(<u>Rana pipiens</u>)

Cover Type 5 – Pole-sized Mixed Wooded Wetland

Flora	
Trees – Red Maple	(<u>Acer rubrum L.</u>)
Alder	(<u>Alnus incana L.</u>)
Juneberry, Shadbush	(<u>Amelanchier laevis Ahle</u>)
Yellow Birch	(<u>Betula allegheniensis Britt</u>)
Blue Beech, Musclewood	(<u>Carpinus caroliniana Walt</u>)
White Ash	(<u>Fraxinum americana L.</u>)
White Pine	(<u>Pinus strobus L.</u>)
Hemlock	(<u>Tsuga canadensis Carr</u>)
Shrubs – Bristly Sarsaparilla	(<u>Aralia hispida Vent</u>)
Sarsaparilla	(<u>Aralia nudicaulis L.</u>)
Silky Dogwood	(<u>Cornus amomum Mill</u>)
Red osier Dogwood	(<u>Cornus sericea L.</u>)
Witch Hazel	(<u>Hamamelis virginiana L.</u>)

	Smooth Winterberry Spice Bush Mountain Holly	(<u>Ilex laevigata</u> Gray) (<u>Lindera benzoin</u> Blume) (<u>Nemopanthus mucronata</u> <u>Loesener ex koehne</u>)
	Poison Ivy	(<u>Toxicodendron rydbergii</u> <u>Greene</u>)
	Northern Gooseberry Smooth Currant Dewberry Shrub Willow Red-berried Elder	(<u>Ribes hirtellum</u> Michx) (<u>Ribes glandulosum</u> Gruer) (<u>Rubus hispida</u> L.) (<u>Salix</u> sp.) (<u>Sambucus pubens</u> L.)
Sedges -	Sedge Sedge Sedge Tussock Sedge	(<u>Carex lacustris</u> Willd) (<u>Carislupulina</u> Muhl) (<u>Carex retrorsa</u> Schwein) (<u>Carex stricta</u> Lam)
Forbes –	Water Plantain Bed-straw Jewel Weed Blue Flag Iris Swamp Loosestrife Miterwort Wood Sorrel Arrow-leaf Tear Thumb Tear Thumb Buttercup Poison Ivy	(<u>Alisma plantago-aquatica</u> L.) (<u>Galium boreale</u> L.) (<u>Impatiens capensis</u> Meerb) (<u>Iris versicolor</u> L.) (<u>Lysimachia terrestris</u> BSP) (<u>Mitella diphylla</u> L.) (<u>Oxalis montana</u> Raf) (<u>Polygonum arifolium</u> L.) (<u>Polygonum sagittatum</u> L.) (<u>Ranunculus hispidus</u> Michx) (<u>Toxicodendron rydbergii</u> <u>Greene</u>)
	Smooth Currant Dewberry Shrub Willow Red-berried Elder Common Skullcap Mad-dog Skullcap Nightshade	(<u>Ribes glandulosum</u> Gruer) (<u>Rubus hispida</u> L.) (<u>Salix</u> sp.) (<u>Sambucus pubens</u> L.) (<u>Scutellaria galericulata</u> L.) (<u>Scutellaria lateriflora</u> L.) (<u>Solanum dulcamara</u> L.)
Ferns -	Cinnamon Fern Sensitive Fern	(<u>Osmunda cinnamomea</u> L.) (<u>Osmunda sensibilis</u> L.)
Rush -	Horse Rush	(<u>Equisetum sylvaticum</u> L.)

Fauna

Mammals – Short-tailed Shrew	(<u>Blarina brevicauda</u>)
Coyote	(<u>Canis latrans</u>)
Beaver	(<u>Castor canadensis</u>)
Opossum	(<u>Didelphis marsupialis</u>)
Skunk	(<u>Mephitis mephitis</u>)
White-tailed Deer	(<u>Odocoileus virginianus</u>)
Deer Mouse	(<u>Peromyscus maniculatus</u>)
Raccoon	(<u>Procyon lotor</u>)
Grey Fox	(<u>Urocyon cinereoargentatus</u>)
Red Fox	(<u>Vulpes fulva</u>)
 Birds -	
Ruffed Grouse	(<u>Bonasa umbellus</u>)
Flicker	(<u>Colaptes auratus</u>)
Common Crow	(<u>Corvus brachyrhynchos</u>)
Chestnut-sided Warbler	(<u>Dendroica pensylvanica</u>)
Yellowthroat	(<u>Geothlypis trichas</u>)
Least Flycatcher	(<u>Empidonax minimus</u>)
Wood Thrush	(<u>Hylocichla mustelina</u>)
Turkey	(<u>Meleagris gallopavo</u>)
Hairy Woodpecker	(<u>Picoides villosus</u>)
American Robin	(<u>Turdus migratorius</u>)
Mourning Dove	(<u>Zenaidura macroura</u>)

Cover Type 6 – Pole Hardwood Wooded Wetland

Flora

Trees – Red Maple	(<u>Acer rubrum L.</u>)
White Ash	(<u>Fraxinus americana L.</u>)
White Pine	(<u>Pinus strobus L.</u>)
Quaking Aspen	(<u>Populus tremuloides Michx.</u>)
Black Cherry	(<u>Prunus serotina Ehrh</u>)
American Elm	(<u>Ulmus americana L.</u>)
 Shrubs – Alder	(<u>Alnus incana L.</u>)
Bittersweet	(<u>Celastrus scandens L.</u>)
Silky Dogwood	(<u>Cornus amomum Mill</u>)
Gray Dogwood	(<u>Cornus racemosa Lam</u>)
Mountain Holly	(<u>Nemopanthus mucronata</u> <u>Loesener ex koehne</u>)

Virginia Creeper	(<i>Parthenocissus quinquefolia</i> L.)
Choke Cherry	(<i>Prunus virginiana</i> L.)
Skunk Currant	(<i>Ribes glandulosum</i> Grauer)
Black Raspberry	(<i>Rubus allegheniensis</i> Port)
Dewberry	(<i>Rubus hispida</i> L.)
Swamp Dewberry	(<i>Rubus pubescens</i> Raf)
Red-berried Elder	(<i>Sambucus pubens</i> House)
Hardhack	(<i>Spirea latifolia</i> L.)
Arrowwood	(<i>Viburnum dentatum</i> L.)
Nannyberry	(<i>Viburnum lentago</i> L.)
Sedges – Sedge	(<i>Carex debilis</i> Michx)
Sedge	(<i>Carex tunescens</i> L.)
Forbes - Cockleburr	(<i>Agrimonia gryposepala</i> Wallr)
Jack-in-the Pulpit	(<i>Arisaema triphyllum</i> L.)
Marsh Marigold	(<i>Caltha palustris</i> L.)
Virgin's Bower	(<i>Clematis virginiana</i> L.)
Enchanter's Nightshade	(<i>Circaeae lutetiana</i> L.)
Wild Cucumber	(<i>Echinocystis lobata</i> Torr)
Strawberry	(<i>Frageria virginiana</i> Mill)
Ground Ivy	(<i>Glechoma hederacea</i> L.)
Jewel Weed	(<i>Impatiens capensis</i> Meerb)
Blue Flag Iris	(<i>Iris versicolor</i> L.)
Yellow Loosestrife	(<i>Lysimachia terrestris</i> BSP)
Purple Fringed Orchid	(<i>Platanthera grandiflora</i> Lindl)
Buttercup	(<i>Ranunculus</i> sp.)
Tall Goldenrod	(<i>Solidago canadensis</i> L.)
Spreading Goldenrod	(<i>Solidago patula</i> Muhl)
Tall Meadow Rue	(<i>Thalictrum pubescens</i> Pursh)
Ferns - Wood Fern	(<i>Dryopteris carthusiana</i> Fuchs)
Sensitive Fern	(<i>Onoclea sensibilis</i> L.)
Moss - Sphagnum	(<i>Sphagnum</i> sp.)
	Fauna
Mammals – Short-tailed Shrew	(<i>Blarina brevicauda</i>)
Eastern Coyote	(<i>Canis latrans</i>)
Skunk	(<i>Mephitis mephitis</i>)
White-tailed Deer	(<i>Odocoileus virginianus</i>)

Deer Mouse	<u>(Peromyscus maniculatus)</u>
Raccoon	<u>(Procyon lotor)</u>
Cottontail Rabbit	<u>(Sylvilagus floridanus)</u>
Grey Fox	<u>(Urocyon cinereoargentatus)</u>
Red Fox	<u>(Vulpes fulva)</u>
Birds -	
Flicker	<u>(Colaptes auratus)</u>
Chestnut-sided Warbler	<u>(Dendroica pensylvanica)</u>
Yellowthroat	<u>(Geothlypis trichas)</u>
Least Flycatcher	<u>(Empidonax minimus)</u>
Wood Thrush	<u>(Hylocichla mustelina)</u>
Northern Oriole	<u>(Icterus galbula)</u>
Turkey	<u>(Meleagris gallopavo)</u>
Song Sparrow	<u>(Melospiza melodia)</u>
Woodcock	<u>(Philohela minor)</u>
Hairy Woodpecker	<u>(Picoides villosus)</u>
American Robin	<u>(Turdus migratorius)</u>
Red-eyed Vireo	<u>(Vireo olivaceus)</u>
Amphibia –Tree Frog	<u>(Hyla versicolor)</u>