

AN ECOLOGICAL ASSESSMENT OF THE WESTERN 30 ACRES OF THE WILLIAM
AND BRENDA MOORS PROPERTY LOCATED IN SECTION 26, T. 28 N., R. 9W.
WHITEWATER TOWNSHIP GRAND TRAVERSE COUNTY, MICHIGAN

DOCUMENTATION FOR A CONSERVATION EASEMENT

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INTRODUCTION

The following inventory of the physical and ecological features of the western 30 acres of the William and Brenda Moors property which are described here was undertaken for Rotary Charities of Traverse City at the Request of Rob Collier, and with the help and permission of the owners of the land. The purpose of this inventory is for use in preparing a Conservation Easement documentation, and the sketch maps and photos which accompany this report are to aid the land trust in future monitoring. The field work for this report was conducted on 11 and 13 September 1990. On each occasion, Bill Moors kindly accompanied me to point out the boundaries and significant features, and then left me in the area to conduct the remainder of my work. It should be noted that at the time this assessment was commissioned in late summer, many flowering plants had finished blooming. Consequently, some identifications were based on vegetative parts, seeds, and the authors prior knowledge of similar woods in the region in spring. Assessment of wildlife is based partly on the field visit, and partly on the author's considerable prior experience and knowledge of wildlife biology in the region.

The maps and Soil Conservation Service air photo indicate that this portion of the Moors property is primarily swamp lands which are for the most part permanently saturated soils with poor drainage. There is one major oligotrophic stream, Bottle Creek, which cuts across the southwest corner of the proposed easement. This stream supports a native Brook Trout population, and is in a pristine and well shaded condition. Several smaller tributaries and springs enter the creek on the Moors property. The most prominent tributary to the creeek is the outlet stream from the Moors pond. The northern boundary of the property is approximately 750 feet of pristine, undeveloped shoreline on Elk Lake.

The variations of vegetation and topography within this 30 acre swamp led me to describe four separate sub-habitats. They are listed following as (1) the swamp woods near the shore of Elk Lake, (2) the bog near the shore of Elk Lake (the northwestern corner of the easement property), (3) drier uplands near the junction of Bottle Creek and the Moors pond outlet stream, and (4) the main swamp west of the pond.

Identification of the property's vegetation and preparation of this report was completed with the aid of the several standard field guides, and the nomenclature followed adheres to these sources. The names of trees follow *Michigan Trees* by Barnes and Wagner (1989). Names of flowering plants are from *Michigan Wildflowers* by Smith (1966). Names of ferns follow *Ferns of Michigan* by Billington (1952). Names of shrubs follow *Shrubs of Michigan*, Also by Billington (1949).

FINDINGS

(1) SWAMP WOODS NEAR ELK LAKE SHORE

(area marked * 1 on map and air photo)

WILDLIFE

The whole 30 acre parcel is very important as a White Cedar deer yard for the overwinter survival of overwintering White-tailed Deer (*Odocoileus virginianus*). In the past the cedar provided food as well as cover, but like many northern Michigan deer yards, most of the palatable species including the cedar have been browsed out over a period of many years. Now the main importance is the shelter that the cedars offer. This has often been referred to as the "green barn" effect by wildlife biologists.

It is in this zone near Elk Lake where the greatest change in the tree species toward "swamp hardwoods" has occurred. This is reflected in the following species list. Therefore the zones listed as *3 and *4 are the most prime deer yard areas. Zone * 2 has so many springs and lacks the woody vegetation of the other three zones, and is probably of little importance to deer in winter.

Several migrating fall warblers, Black-capped Chickadees, Flickers, and an unidentified flycatcher were the birds seen here. Evidence of Pileated Woodpecker holes in the trees show their presence as well.

Herbaceous Plants

Beggars Tick, *Bidens frondosa*

Jewel Weed, *Impatiens capensis*

Water Horse Tail, *Equisetum fluviatile*

Wintergreen, *Gaultheria procumbens*

Fringed Polygola, *Polygola paucifolia*
Boneset, *Eupatorium perfoliatum*
White Lettuce, *Preanthes alba*
Wild Lettuce, *Lactuca canadensis*
Shining Clubmoss, *Lycopodium lucidulum*
Self Heal, *Prunella vulgaris*
Wild Sarsparilla, *Aralia nudicaulis*
Large Leaf Aster, *Aster macrophyllus*
New England Aster, *Aster novae-angliae*
Willow Herb, *Epilobium strictum*
Water Buttercup, *Ranunculus flabellaris*
Peppermint, *Mentha piperita*
Bead Lily, *Clintonia borealis*
Canada Mayflower, *Mianthemum canadensis*
Skullcap, *Scutellaria epilobifolia*
Mullein, *Verbascum thapsis*
Fireweed, *Epilobium angustifolium*
Goldthread, *Coptis groenlandica*
Bracken Fern, *Pteridium aquilinum*
Royal Fern, *Osmunda regalis*
Sensitive Fern, *Onoklea sensibilis*
Oak Fern, *Dryopteris disjuncta*
Coltsfoot, *Petasites palmatus*
Swamp buttercup, *Ranunculus septentrionalis*
Poison Ivy, *Rhus radicans*
Sellaginella, *Sellaginella selaginoides*
Kidney-leaved Violet, *Viola renifolia*
Grass leaved Goldenrod, *Solidago graminifolia*
White Baneberry, *Actea pachypoda*

Shrubs

Wild Grape, *Vitis riparia*
Red Osier Dogwood, *Cornus stolonifera*
Alder, *Alnus rugosa*

Trees

Balsam Fir, *Abies balsamea*
Green Ash, *Fraxinus pennsylvanica*
White Cedar, *Thuja occidentalis*
Trembling Aspen, *Populus tremuloides*
Balsam poplar, *Populus balsamifera*
River Birch, *Betula riparia*
Yellow Birch, *Betula lutea*
Red Oak, *Quercus rubra*
Red Maple, *Acer rubrum*

This and the other wooded zones of the swamp are laden with windfallen trees making access on foot very difficult. I initially approached this zone on the only improved path that leads to the small clearing where Bill Moors keeps a small boat, but soon found my progress through the swamp to be inhibited because of the many tree and stump barriers.

(2) THE SHORELINE AND ADJACENT BOG HABITAT

(*2 on map and air photo)

WILDLIFE

Little evidence of wildlife was seen in this area, but there must be important amphibian and reptile components present here. There was a tunnel-like trail which was probably made by an Otter (*Lutra canadensis*).

HERBACEOUS PLANTS

Arrowleaf, *Sagittaria latifolia*
Swamp Rose, *Rosa palustris*
Cattail, *Typha latifolia*
Royal Fern
Pickerel Weed, *Pondtederia cordata*

Boneset
Selaginella
Sedge, *Carex sp.*
Iris, *Iris versicolor*
Cup Lichen, *Cladonia sp.*
Joe-pye Weed, *Eupatorium purpureum*
Cinnamon Fern, *Osmunda cinnamomea*
Marsh Shield Fern, *Dryopteris thelypteris palustris*
Poison Ivy, *Rhus radicans*
3 way Sedge, *Duckchium arundinaceum*
St. Johns Wort, *Hypericum punctatum*
Columbine, *Aquilegia canadensis*
Cut grass, *Leersia oryzoides*
Manna grass, *Glyceria grandis*
Moss, *Mnium sp.*
Large Liverwort, *Marchantia sp.*
Canada Blue Grass, *Poa canadensis*
Reed Grass, *Calamograstis sp.*
Sage Leaf willow, *Salix candida*
Bog Willow, *Salix pedicellaris*
Grass of Parnassus, *Parnassia glauca*
Pitcher Plant, *Sarracenia purpurea*
Round Leaf Sundew, *Drosera rotundifolia*
Leather leaf, *Chamaedaphne calyculata*
Sphagnum Moss, *Sphagnum sp.*
Boneset, *Eupatorium*
Red Osier dogwood, *Cornus stolonifera*
Sweet Gale, *Myrica gale*
Potentilla, *Potentilla palustris*
Creeping Snowberry, *Gaultheria hispida*
Bog Rosemary, *Andromeda glaucophylla*
Bog Laurel, *Kalmia polifolia*
Bog Bean, *Menyanthes trifoliata*
Blueberry, *Vaccinium angustifolium*
Bladderwort, *Utricularia sp.*

Marsh Merrigold, *Caltha palustris*
Water Willow, *Decodon verticillatus*
Water Horehound, *Lycopus americanus*
Swamp Dock, *Rumex septentrionalis*
Bedstraw, *Galium trifidum*
Skullcap, *Scutellaria galaericulata*
Laborador Tea, *Ledum goenlandicum*
Alder, *Alnus rugosa*
Swamp Saxifrage, *Saxifraga pennsylvanica*
Brook Lobelia (on shore and stumps), Lobelia kalmii

TREES

Tammarack, *Larix laricina*
White Cedar, *Thuja occidentalis*

Progressing from east to west the shore changes from a swamp with predominantly trees to a bog at the west edge of the property. The bog is filled with bubbling springs between sedge hummocks, and potential walkers should beware of this hazard. The three bubbling springs encountered on this survey had no bottom, and the only thing that saved me was the fact that I only stepped in with one leg. Extraction from such a circumstance is possible only with great effort. The bog zone stretches behind a berm in a band about 60-75 meters wide with sparse Tammarack and cedar clumps (4 to 12 small trees per 10 meters square).

A noteworthy feature of this shoreline is the fine sandy beach and associated berm along the beach. This could fool the uninitiated into thinking that the frontage behind the berm is developable beach frontage. Nothing could be further from the truth. The berm is apparently caused by ice heave in the winter, and forms a natural barrier between the bog and the lake. This system has probably been in existence since the retreat of the glaciers, and is deserving of further study. If the berm were destroyed for some reason, the nature of the bog and swamp would probably be irrevocably changed.

(3) THE DRIER GROUND NEAR THE JUNCTION OF THE TWO MAIN CREEKS

(zone *3 on map and aerial photos)

WILDLIFE:

There is abundant sign of White-tailed deer in this area. Many deer beds were seen in the sedges along and above the main stream and several of the herbaceous plants showed signs of deer feeding. The main stream of Bottle Creek is crossed by many fallen logs, and there are numerous stumps that the creek flows around and through.

HERBACEOUS PLANTS:

Beggars Tick, *Bidens frondosa*
Jewel Weed, *Impatiens capensis*
Bracken Fern, *Pteridium aquilinum*
Marsh Merrigold, *Caltha palustris*
Water Cress, *Rorippa palustris*
Swamp Dock, *Rumex septentrionalis*
Gold Thread, *Coptis groenlandica*
Swamp Saxifrage, *Saxifraga pensylvanica*
Bone Set, *Eupatorium perfoliatum*
Large Leaf Aster, *Aster macrophylla*
Water Hemlock, *Cicuta maculata*
Cut grass, *Leersia oryzoides*
Fringed Polygola, *Polygola paucifolia*
Star Flower, *Trientalis borealis*
Bunchberry, *Cornus canadensis*
Kidney violet, *Viola reniformis*
Canada Mayflower, *Mianthemum canadense*
Oak fern, *Dryopteris disjuncta*
Spinulose Shield Fern, *Dryopteris spinulosa*
Crested Shield Fern, *Dryopteris cristata*
Rush, *Scirpus cyperinus*
Sedges, *Carex sp.*
True Solomon's Seal, *Polygonatum pubescens*

Red Baneberry, *Actea rubra*
Partridge Berry, *Mitchella repens*
Cladonia sp., 3 species on stumps
Choke Cherry, *Prunus virginianus*
Grape, *Vitis riparia*
Orange Hawkweed, *Hieracium aurantiacum*
Moss, *Polytrichum sp.*
Twin Flower, *Linnaea borealis*
Bed Straw, *Galium boreale*
Wild Lettuce, *Lactuca canadensis*
Puff Balls
Earth Stars

TREES:

Hemlock, *Tsuga canadensis*
Red Maple, *Acer rubrum*
White Birch, *Betula papyrifera*
Trembling Aspen, *Populus tremuloides*
Balsam Poplar, *Populus balsamifera*
White Cedar, *Thuja occidentalis*
Balsam Fir, *Abies balsamea*
Green Ash, *Fraxinus pensylvanica*
White Pine, *Pinus strobus*

(4) THE SWAMP WEST OF THE POND

(*4 on map and aerial photo)

WILDLIFE:

This is an important part of the winter deer yard. I also saw evidence of an owl, probably a Barred Owl, in this habitat. This area represents the deep heart of the swamp which extends to the zones described in *1 and *2 with primarily temporary pools, springs, and beds of Liverworts interspersed with *Equisetum fluviatile* all shaded by a dense canopy of White Cedar and Hemlock with an occasional Yellow Birch (*Betula lutea*) and Ironwood (*Ostrya virginiana*). There is an abundance of Royal, Sensitive fern, and Oak fern as

well as a few species indicative of drier ground like Red Osier Dogwood, Raspberry, Blueberry, Wild Sarsparilla, and occasional abundant beds of Poison Ivy. I will not re-list many of the plant species which are found here because of the similarities to the previous zones. I will instead list only those species which are not listed previously.

Herbaceous Plants:

Bishops Cap, *Mitella diphylla*

Miterwort, *Mitella nuda*

Jack in the Pulpit, *Arisaema atrorubens*

Red Elder, *Sambucus canadensis*

Poke Weed, *Phytolacca americana*

Black Snakeroot, *Sanicula canadensis*

Large leafed *Selaginella*, *Selaginella* sp.

Clematis, *Clematis virginiana*

Rattlesnake Fern, *Botrichium virginianum*

DISCUSSION:

This property is in nearly pristine condition, has major importance to the deer populations in the area as a winter yard, and contains a wide diversity of wetland species of plants. The main creek, Bottle Creek, is prime wild trout habitat, which is not heavily fished. For these reasons, and because the property is primarily wetland and could not be ethically developed anyway, I heartily recommend that a conservation easement be granted, and that the acreage described herein be preserved for future generations to appreciate.

The only minor cautions I can think of are to delineate carefully the amount of area devoted to the small boat landing at Elk Lake so that some future owner would not be tempted to encroach on the easement, and also to delineate carefully which trails (the one to the lake for example) are to be maintained for access to the area. There is no evidence of recent timber harvest in the swamp, but descriptions should eliminate that possibility in the future with the possible exception of small deer habitat improvement cuts.