

Reconnaissance Report on Several Locations Adjacent
to the Sleeping Bear Dunes National Lakeshore

Prepared by:

Richard W. Pippen
Biology Department
Western Michigan University
Kalamazoo, Michigan

On October 13 with Paul Thompson, W.H. Wagner, Jr. and several others I examined several areas near the Sleeping Bear Dunes National Lakeshore area for their aesthetic and scenic qualities and vegetation features. The areas studied, all in Leelanau County, were: Miller Ridge Valley Complex in Sec. 19 of Cleveland Township: Bow Lake Valley Complex in parts of Sects. 7, 8 of Cleveland Twp. and Sec. 17, 18 in Kasson Twp. and the Glen Lake Kettle Moraine in Sect. 23 of Empire Twp.

Miller Ridge Morainal Sector (Leelanau County, Cleveland Twp. Sec. 19)

Miller Ridge, a high glacial morainal ridge, forms one of the highest points around the park. Located along the ridge are a number of potential scenic lookouts providing excellent views of the valleys, Glen Lake, and Lake Michigan. Nestled between two of these high morainal ridges, running in a northwest--southwest direction is a deep, long and narrow glacial valley that extends for over two miles. The valley floor is at least two hundred feet below the top of the ridge and both the floor and the steep side slopes of the valley are heavily wooded. The vegetation is classified as Northern Hardwood Forest dominated mostly by beech and maples with hemlocks and some pine. While October is not the best time to observe spring vegetation, available evidence suggested that this area possesses a rich, exciting, and varied Spring Flora. Noticable among the plant species on both the slopes and valley

floor were American Yew, (Taxus Americana) Shining Club Moss, (Lycopodium lucidulum), Ground Pine (Lycopodium obscurum-a rare type) a number of ferns including Maidenhair fern (Adiantum pedatum), Marginal Shield Fern (Dryopteris marginalis) and Intermediate Shield Fern, (Dryopteris intermedia), Jack-in-the Pulpit (Arisaema triphyllum) and many others (see list at end of report).

On the floor of the valley the vegetation contains some excellent stands of Hemlock, (Tsuga canadensis) mixed with the deciduous maple and beech trees along with a number of subdominants including Ironwood (Ostrya virginiana), Basswood (Tilia americana) and some Red Maple (Acer rubrum). The vegetation combined with the geological features including the rugged terrain and the narrow glacial valley tucked between these high, steep ridges provides an unusual combination of features worth preserving. The nearest similar forest type that is protected is probably Fife Lake State Forest. The roads presently in the Miller Ridge area would provide at least foot trail access into the valley without additional disturbance and the area would be an excellent site to develop a nature interpretation program. Changes in vegetation zones from the tops of the ridge to the bottom could be explained along a nature interpretation trail. The top of the ridge is more open in vegetation with junipers, jack pine and some hardwood vegetation. Lycopodium tristachyum a rare clubmoss was observed growing abundantly in parts of this area. If this upper ridge area were to be developed for houses or by commercial establishments many of the views into and from the park would certainly be spoiled.

I recommend that this area be purchased as an addition to the park and used as a nature interpretation area both vegetationally and geologically.

No similar combination of vegetation and geological features exist in the park.

Bow Lake Valley Complex (Leelanau Co., Cleveland Twp. Sec. 19)

Bow Lake Valley Complex is essentially a long narrow valley nestled between two high wooded bluffs. In the valley are a number of marly-shored kettle lakes, surrounded by bogs, fens, wet meadows, and marshes. The wooded

bluffs are very steep-sided and the entire complex is very rugged-- definitely a wild area. Vegetationally the area is similar to the Miller Ridge--forested with typical Northern Hardwood Forest plants. The Maidenhair fern is more abundant on these slopes than anywhere else I have observed. The large ginseng (Panax quinquefolia) (Threatened in Michigan) has been reported from this area and I would expect a rich and varied Spring Flora. The floor of the valley possesses a series of wetland area ranging from White Cedar swamps to marshes, fens, sedge meadows and lakes. The lakes and their associated shores are very marly. Toward the south end of the complex is a nice bog with a floating mat dominated by leatherleaf (Chamaedaphne calyculata) and other bog plants. At other times of the growing season one might expect to find a number of rare or endangered plants in such areas but none were observed on this trip. The vegetation included a number of grasses, sedges, cattails, shore plants and other typical wetland plants. Evidence of deer was abundant. This rugged area could very well be designated a wild area because of the ruggedness of the area. The old roads that penetrate the areas could be developed easily into walking nature trails without damaging the vegetation or natural environment further and the area could provide a valuable nature interpretation resource from steep forested slopes to wet, white cedar swamps and open marshy wetlands. No areas similar to this vegetation geologic complex exist within the present park boundaries to my knowledge.

Glen Lake Kettle Moraine (Leelanau Co. Empire Twp. Sect. 23.)

This area, located directly south of the east basin of Glen Lake possesses some of the highest terrain in the county. The vegetation of the less disturbed areas is typical Northern Hardwood Forest with beech, maple, pines and some hemlock.

Evidence suggests that this area like the others discussed in this report has an excellent, rich and exciting Spring Flora. Of particular interest in this area is a high, round, steep-sloped kettle over 100 feet deep. The area is high enough that the kettle rather than forming a lake is dry at the bottom and the entire kettle is forested. Along

the slopes and near the bottom are a number of interesting ferns (especially in the genus Asplenium) (I am certain these plants will be more fully discussed in Wagner's report.) apparently in the past (perhaps even presently) this area has been used as a dumping ground since many head-sized boulders and some 55-gal. drums and other trash were present at the bottom. This most unusual and interesting geologic feature is definitely worthy of preservation and use as a nature interpretive area. To my knowledge there is no other similar area within the present park boundary.

All three of these areas discussed above are very exciting. While not the same as the spectacular Sleeping Bear Dunes themselves these areas are in and of themselves very interesting combinations of unusual geologic features ranging from high steep-sloped morainal ridges to long narrow glacial valley to kettle lakes and forested kettle holes. The vegetation, generally similar in all three areas and characterized as Northern Hardwood forest, is characteristic of the climax vegetation of Northern Michigan and in addition to the dominants--maple, beech, hemlock and pine--these forests have a rich flora of Spring ephemerals and a multitude of very interesting ferns and club mosses. (See list at end of report). While the dunes forest within the park has many similar plants these forests are not on sand dunes but on glacial moraines and no similar combination of forest and geologic features such as these exist within the present park boundaries. The acquisition of these areas to the Park would provide unique natural areas for preservation of typical northern vegetation and unique geologic features and also provide worthy additions to the educational value of the Park through the development of nature study and interpretative trails through these areas.

I strongly urge that these three areas be added to the Sleeping Bear Dunes National Lakeshore Area.

Supplement: Partial list of plant species that would be expected to occur in the three areas discussed in this report.

PLANTS OF DRIER HABITATS

<i>Lycopodium obscurum</i>	Ground Pine
<i>Selaginella rupestris</i>	Spike Moss
<i>Botrychium matricariifolium</i>	Daisyleaf Grape Fern
<i>Botrychium dissectum</i>	Cufleaf Grape Fern
<i>Pteridium aquilinum</i>	Bracken Fern
<i>Carex pensylvanica</i>	Pennsylvania Sedge
<i>Maianthemum canadense</i>	Canada Mayflower
<i>Cypripedium acaule</i>	Pink Ladyslipper
<i>Habenaria orbiculata</i>	Largeleaf Orchid
<i>Spiranthes gracilis</i>	Slender Ladies Tresses
<i>Populus grandidentata</i>	Large-tooth Aspen
<i>Populus tremuloides</i>	Quaking Aspen
<i>Betula papyrifera</i>	White Birch
<i>Quercus alba</i>	White Oak
<i>Quercus borealis</i>	Red Oak
<i>Comandra richardsiana</i>	False Toadflax
<i>Rumex acetosella</i>	Sheep Sorrel
<i>Polygonella articulata</i>	Jointweed
<i>Aquilegia canadensis</i>	Columbine
<i>Hepatica americana</i>	Roundleaf Hepatica
<i>Hamamelis virginiana</i>	Witch Hazel
<i>Prunus virginiana</i>	Choke Cherry
<i>Prunus pensylvanica</i>	Pin Cherry
<i>Amelanchier laevis</i>	Allegheny Shadbush
<i>Amelanchier sanguinea</i>	Redtwig Shadbush
<i>Polygala paucifolia</i>	Fringed Polygala
<i>Acer rubrum</i>	Red Maple
<i>Ceanothus americanus</i>	New Jersey Tea
<i>Helianthemum canadense</i>	Sundrop
<i>Shepherdia canadensis</i>	Buffalo Berry
<i>Oenothera biennis</i>	Evening Primrose
<i>Aralia nudicaulis</i>	Wild Sarsaparilla
<i>Chimaphila umbellata</i>	Prince's Pine
<i>Pyrola elliptica</i>	Ellipticleaf Shinleaf
<i>Pyrola secunda</i>	One-sided Shinleaf
<i>Epigaea repens</i>	Trailing Arbutus
<i>Arctostaphylos uva-ursi</i>	Bearberry
<i>Gaultheria procumbens</i>	Wintergreen
<i>Gaylussacia baccata</i>	Huckleberry
<i>Vaccinium lamarckii</i>	Low Blueberry
<i>Hackelia virginiana</i>	Stickseed
<i>Satureja vulgaris</i>	Wild Basil
<i>Pedicularis canadensis</i>	Wood Betony
<i>Melampyrum lineare</i>	Cow Wheat
<i>Mitchella repens</i>	Partridge Berry
<i>Galium pilosum</i>	Hairy Bedstraw
<i>Diervilla lonicera</i>	Bush Honeysuckle
<i>Lonicera dioica</i>	Smooth Honeysuckle
<i>Symphoricarpos albus</i>	Snowberry
<i>Helianthus divaricatus</i>	Woodland Sunflower
<i>Artemisia caudata</i>	Dune Wormwood
<i>Solidago hispida</i>	Hairy Goldenrod

PLANTS OF LEELANAU HARDWOOD FORESTS

<i>Lycopodium clavatum</i>	Trailing Clubmoss
<i>Lycopodium annotinum</i>	Upright Clubmoss
<i>Lycopodium complanatum</i>	Flatbranch Ground Cedar
<i>Botrychium virginianum</i>	Rattlesnake Fern
<i>Adiantum pedata</i>	Maidenhead Fern
<i>Dryopteris austriaca</i>	Wood Fern
<i>Dryopteris marginalis</i>	Marginal Wood Fern
<i>Tsuga canadensis</i>	Hemlock
<i>Carex pedunculata</i>	Longstalked Sedge
<i>Carex plantaginea</i>	Broadleaf Sedge
<i>Arisaema triphyllum</i>	Jack-in-the-Pulpit
<i>Allium tricoccum</i>	Wild Garlic
<i>Erythronium americanum</i>	Yellow Trout Lily
<i>Clintonia borealis</i>	Clintonia
<i>Smilacina racemosa</i>	False Solomon Seal
<i>Maianthemum canadense</i>	Canada Mayflower
<i>Uvularia grandiflora</i>	Bellwort
<i>Polygonatum pubescens</i>	Hairy Solomon Seal
<i>Trillium grandiflorum</i>	Large White Trillium
<i>Habenaria viridis</i> var. <i>bracteata</i>	Green Bracted Orchid
<i>Goodyera repens</i>	Small Rattlesnake Plantain
<i>Goodyera decipiens</i>	Large Rattlesnake Plantain
<i>Corallorhiza maculata</i>	Spotted Coralroot
<i>Ostrya virginiana</i>	Ironwood
<i>Betula lutea</i>	Yellow Birch
<i>Fagus grandifolia</i>	Beech
<i>Quercus borealis</i>	Red Oak
<i>Ulmus rubra</i>	Red Elm
<i>Claytonia caroliniana</i>	Northern Spring Beauty
<i>Actaea alba</i>	White Baneberry
<i>Actaea rubra</i>	Red Baneberry
<i>Thalictrum dioicum</i>	Early Meadow Rue
<i>Hepatica acutiloba</i>	Sharplobed Hepatica
<i>Caulophyllum thalictroides</i>	Blue Cohosh
<i>Sanguinaria canadensis</i>	Bloodroot
<i>Dicentra cucullaria</i>	Dutchman Breeches
<i>Dicentra canadensis</i>	Squirrel Corn
<i>Dentaria diphylla</i>	Broadleaf Toothwort
<i>Dentaria laciniata</i>	Cutleaf Toothwort

PLANTS OF LEELANAU HARDWOOD FORESTS

Tiarella cordifolia	Foam Flower
Mitella diphylla	Common Mitrewort
Ribes cynosbati	Common Gooseberry
Ribes americanum	American Currant
Geum canadense	White Avens
Prunus serotina	Black Cherry
Geranium robertianum	Herb Robert
Acer saccharum	Sugar Maple
Tilia americana	Basswood
Viola incognita	Largeleaf White Violet
Viola pubescens	Downy Yellow Violet
Viola eriocarpa	Smooth Yellow Violet
Viola canadensis	Canada Violet
Viola conspersa	Dog Violet
Viola rostrata	Longspur Violet
Aralis nudicaulis	Wild Sarsaparilla
Aralia racemosa	Spikenard
Osmorhiza claytoni	Sweet Cicely
Monotropa uniflora	Indian Pipe
Pyrola elliptica	Ellipticleaf Shinleaf
Pyrola secunda	One-sided Shinleaf
Gaultherium procumbens	Wintergreen
Fraxinus americana	White Ash
Hydrophyllum virginianum	Virginia Waterleaf
Conopholis americana	Squawroot
Epifagus virginiana	Beechdrops
Mitchella repens	Partridge Berry
Galium aparine	Cleavers
Viburnum acerifolium	Mapleleaf Viburnum
Sambucus pubens	Red Berried Elder
Lonicera canadensis	Canada Honeysuckle
Solidago flexicaulis	Broadleaf Goldenrod
Solidago caesia	Bluestem Goldenrod