

SLEEPING BEAR DUNES NATIONAL LAKESHORE PARK REGION

Natural History Values of Selected Areas

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INTRODUCTION

The following report is based upon an intensive survey which was carried on on 13 October 1979 and which focused upon the Bow Lake Glacial Valley, the Leatherleaf Bog, the Ice Block Kettle Hole, and the Miller Hill Area. I was a member of a group of scientists asked to evaluate the natural history values of these areas, their uniqueness, and suitability for interpretive programs as potential components of the Sleeping Bears National Park. The viewpoint expressed herein is that of a general naturalist, a college professor of botany, and an individual interested in public education and the preservation of wildlands for future generations.

THE AREAS AND THEIR NATURAL HISTORY SIGNIFICANCE

1. Bow Lake Valley. This is a fairly steep valley running north-south and flanked by richly wooded hills. The outstanding feature is a series of lakes and ponds, at the edges of which have formed various vegetation types, these largely related to the strongly calcareous nature of the water and soil. The water in the ponds and lakes at the time of our observations was whitish-blue, and numerous evidences of the heavily mineralized nature of the water could be seen. Of special interest botanically

is the excellent development of sedges (Cyperaceae) and rushes (Juncaceae). Also, along the edges are extensive shrubby swamps, included in which are numerous plants of interest. I noted especially the variety of ferns such as Crested fern (Dryopteris cristata), Royal fern (Osmunda regalis), and Lady fern (Athyrium filix-femina). Old plants of several species of orchids were observed, including a fringed orchid, Habenaria. Along various edges are abundant plants of the Grass-of-Parnassus, Parnassia, usually a good indicator of strongly calcareous substratum. The trails here are not clear-cut, and we had some difficulties in finding our way.

The natural history values of the Bow Lake valley can be maximized by setting up carefully designed foot trails accompanied by leaflets describing the glacial origin, the distinctive chemistry of the waters of the lakes and ponds, and the more prominent botanical features. The area has a very distinctive flavor to it because of the topography and especially the nature of the lakes and the calciphile plant life.

2. The Leatherleaf Bog. This formation, located at the base of steep, wooded slopes, is not matched by any other wetland in the present borders of the Sleeping Bear Dunes Park. It is made up largely of a very large, open Leatherleaf (Chamaedaphne) mat, upon which grow a considerable variety of typical acidic bog species. Among these are Bog Rosemary (Andromeda), Cranberry (Vaccinium macrocarpon), and Sundew (Drosera rotundifolia). This formation is in striking contrast to the open wetlands associated with the Bow Lake series: the Leatherleaf Bog exemplifies

Lake formation the calcareous substratum and its characteristic vegetation.

Notable at the Leatherleaf Bog is the very strongly developed moat that surrounds it, a moat that is very wide and shows the effects (presumably) of alternating pH conditions of the water, calcareous in the spring and early summer from runoff derived from the hillsides, and acidic in late summer and fall from the bog substratum. In order to get on the bog mat, therefore, it is necessary to either wade through the deep water, or to have some sort of board-walk or other device enabling the visitor to cross over. Once on the mat, even though it may quake to some extent, travel is reasonably easy.

I should like to note some of the natural history features of the slopes above the bog. Although we did not find it, there are plants of Ginseng (Panax quinquefolia) occurring in restricted areas along the slope. This plant has become recently a sort of conservation "football," because of the potentiality of its extinction by ginseng collectors, the roots being of high value for Chinese and American herb fanciers. In addition, the richly wooded slopes display typical growths of many northern hardwood species, including a number of interesting ferns. Along the slopes are the Florist fern (Dryopteris intermedia), the Spinulose Woodfern (D. spinulosa), and the Marginal Woodfern (D. marginalis), the populations of which have special interest for forming distinctive interspecific hybrids, some of which I observed, especially on the slopes directly above the bog in the first fifty or so feet up the sides.

The bog and its associated slopes provide excellent opportunities for demonstrating unusual plants and distinctive

3. Ice Block Kettle Hole. I was astonished to see this and to climb down into it. The slopes are almost like walls 100 feet high. Unable to explore the wooded slopes in detail, I could still tell that they had many interesting plants growing there. The development of the Maidenhair Ferns (Adiantum pedatum) is luxuriant here, but it is matched by the abundant growth of two other ferns, both of these much less common in the Great Lakes Area as a whole; the Glade Fern (Athyrium pycnocarpon) and the Silvery Spleenwort (A. thelypteroides). The colonies of the latter two species are unusually fine, and scarcely matched by their colonies elsewhere.

It is not necessarily true that the interest in the Kettle Hole lies altogether in its geological origin and nature, for, as suggested by the two athyriums mentioned above, there are interesting vegetational formations, and I do not doubt that further detailed explorations will reveal still other plants of special interest.

The steepness of the slopes suggests to me that it will be desirable, if the land is included as part of the Park, to pay attention to the possible hazards for injury for people travelling on the slopes. Perhaps a single trail for all visitors running partly around the rim would be desirable, accompanied by a diagram and explanatory statement about the nature of the Kettle Hole. Limited access to the bottom of the formation might be desirable. Right now, I regret to say, the bottom of the Kettle has been used as a trash dump, and it will need to be cleaned up.

4. Miller's Hill. Miller's Hill or Miller's Ridge commands imposing views of the entire Glen Lake area. Although the land is primarily held in private ownership, there is much of it that is wild and unusually beautiful forested and otherwise vegetated with interesting plant communities. We visited a number of these, and I was especially impressed by the excellent examples of Northern Hardwoods, including the tree elements Sugar Maple (Acer saccharum), Beech (Fagus grandifolia), Hemlock (Tsuga canadensis), Yellow Birch (Betula allegheniensis), White Birch (B. papyrifera), and White Pine (Pinus strobus). The aspect that makes these forests unusual in this area is the combination of these floristic elements (which are themselves found in similar combinations elsewhere in northern Lower Peninsula of Michigan) with complex and steep topography, the latter permitting differentiation within the community and giving rise to wooded slopes facing in different directions with different degrees of moisture and shade. Although detailed investigations of the flora of these forests was not possible, it is obvious that there are potentially here a wide variety of distinctive species. I was impressed by the fine development of Moosewood or Striped Maple (Acer pensylvanicum), and I intend to return to the area during the spring and summer of the coming year to study some of the herbaceous forest floor species, among them a plant which I am currently studying and plan to describe as a new species; although we did not actually find the plant, I do not doubt that it is there, considering the special combination of features which I observed.

Included in the area is a steep, deep valley nearly one-

and one-half miles long, running nearly north-south. We visited this valley, which proved to be a first-rate wilderness area with a rich vegetation. Hemlocks and Yellow birches are conspicuous elements of the overstory. Numerous examples of Grapeferns (Botrychium dissectum) were encountered, as well as striking colonies of the Clubmosses. Among the latter we observed large colonies of the Tree Clubmoss (Lycopodium obscurum) and Shining Clubmoss (L. lucidulum).

An unusual formation occurs on Miller's Hill in which the vegetation stands in sharp contrast to the dominant Northern Hardwood Community. This is called the Juniper Ridge, and is open and exposed, so that the vegetation here is much reduced and xerophytic. The soil here is very porous and sandy, and the plants represent species that call for acidic substratum. It is a prize illustration of its type of community, which is not as common in this part of the state as it is in the central areas (e.g., Crawford, Otsego, Roscommon counties). The most prominent woody plant here is the Northern Low Juniper (which I interpret to be Juniperus communis var. saxatilis, characterized by its flat, somewhat incurved needles). Scattered seedlings of oaks and pines are present. The sandy ground is covered with mosses and lichens, especially Hair-cap Moss (Polytrichum) Elf Cup and British Soldiers Lichens (Cladonia spp.), and Reindeer Moss (Cladina). Of special interest here is the striking development of large colonies of the Ground Cedar Clubmoss (Lycopodium tristachyum), a fairly uncommon species in Michigan as a whole. The colonies display beautifully the modifications resulting from environmental factors: those growing under the junipers represent the shade form, and those out in the open the sun form. (I took

a few specimens of both of these forms for research, which I hope to publish in the near future.)

Most distressing was the amount of building and land clearing that is taking shape on Miller's Hill. Even while we were there we saw trucks and workers (even though it was a Saturday) in the process of laying out lines and working on clearings. It was my understanding that a number of local landowners are afraid that the area may be converted into park holdings for the public, so that they are "hurrying" to cut down as much as possible so that the land will not have as much value for natural history. Whether this is true or not, there is no question that much of the forest area will be destroyed soon, unless there is some sort of moratorium.

The combination of the North Hardwood Forest with extreme topography is not the only park value here. We visited several overlooks from the crest of the Hill that yielded breath-taking scenes of the entire area. One of my fears is that the tops of the ridges, the very sites where the views are best, will be locked into private estate development. Not only will this prevent future use of them for the good of the public, but the presence of numerous houses dotting the tops of the ridges will change the entire atmosphere of the area. They can be seen from practically any point below, and the natural areas setting will be compromised.

CONCLUSIONS AND RECOMMENDATIONS

Of the several sites examined, I would rate them as follows, starting with the most valuable and going to the least:

1. Miller's Hill, including the steep North-south Valley, and Juniper Ridge.
2. Bow Lake, involving the whole valley with its series of marshes and swamps.
3. Kettle Hole.
4. Leatherleaf Bog

However, this sequence is misleading, in my opinion, because all of these sites have potentially strong value in placing the Sleeping Bear Dunes Park in the top rank of National Parks in the Great Lakes area. I am considering here especially the importance of maintaining a broad diversity of habitat and community types within the bounds of the Park, thus increasing its total scope for purposes of the educational and recreation values.

As indicated above, each of the sites has its own special features. It is my understanding that none of them has its match within the present boundaries of the Park, so that each of them stands to augment what is presently held and expand the offerings. From the standpoint of interpretive programs, adding these sites should make it possible to present a very broadly based program, and one that is able to touch on a wider variety of natural communities than is now available. Park museum and literature information media can expand their coverage, so that future visitors to the Park may be able to spend longer periods of profitable time here, and go away with a more complete experience.

I am deeply concerned with habitat destruction which is currently going on in these areas. The throwing of trash into the Kettle Hole is not so serious as the wholesale removal of forest that is being initiated by contractors at Miller's Hill. I consider too that the natural beauty of the entire area will be damaged if the crests of the hills are given over to private estates that can be seen from all points in the valleys below. The general atmosphere will be spoiled.

Whatever happens, it seems to me that restraint upon further encroachments should be initiated, so that careful decisions about the future development of Sleeping Bear Dunes Park can be reached. I do not like the seemingly frantic activities of developers that are going on at this time, and I think it would be a tragedy to exploit an area commercially for the good of a few and the deprivation of the public as a whole.

The Park at present has become increasingly popular with the general public, and any additions to it that will promote an even broader appeal should be seriously considered. Sleeping Bear Dunes Park has the potentiality of becoming an outstanding national landmark for nature interpretation, public education, and wildlands recreation.

From what I have seen, I believe that all four of these areas should be given serious consideration to be added to the Park. If they are added, however, I hope that they will not appear merely as "islands," separated from the main body of the park. A more sensible approach to integrating them would be to embody a series of connections between the different sites. I understand that already "corridors" have been suggested

for just this purpose, and I would like to propose that these connecting areas be reconsidered in connection with the additions discussed here.

In conclusion, speaking as a botanist largely, I believe that there is strong justification for adding the areas reported here to the Sleeping Bear Dunes Park, and I so recommend.