REPORT OF BIOLOGICAL SURVEY OF SHOREWOOD CREEK WOODS, JUNE 12 AND JULY 12, 1991

Like all mesophytic forest the woods at Shorewood Creek is species-rich, though there are many examples that are richer. No species considered national- or state-rare were noted (though several are locally rare, seldom seen this far south). Finally, the woods is very small, not much more than 10 acres. These factors preclude its being considered a high quality natural area. Yet it is a natural area and a quality one, certainly deserving of protection, for these two reasons:

1. The forest is a rare mix of northern and southern species, restricted in all the world to the south shores of Lake Michigan. It is a variant of the Beech-Maple Forest which is the climax vegetation over much of the southern Great Lakes region. The two dominant species of that forest type, sugar maple and American beech, codominate in the Shorewood Creek Woods as well, but they are joined by two other codominants, Canada hemlock from the north and tulip tree from the south. The hemlock is rare this far south except along Lake Michigan, though isolated pockets do occur inland and southward in favorable situations, e.g. along the cool canyons of Turkey Run State Park in west-central Indiana. It is common at higher elevations of the Appalachians as far south as Georgia and Alabama; here in the mountains (as at Turkey Run) the tree also grows side by side with tulip. Hemlock is not a constituent of the Indiana dune forests.

Several other tree species have a much less important place in the forest canopy. Most (black cherry, red oak, basswood, white ash, hop hornbeam) are characteristic of Beech-Maple Forest both to the north and south, but yellow birch is another northerner, not often seen this far south--and when it is, it's in cool bog-like situations, not in mesophytic forest like this. Sycamore, on the other hand, is a southerner; to see the two growing

together here at Shorewood Creek is a botanist's treat!

Three species codominate in the shrub layer. Witch hazel and spicebush reach their northern limit in southern Michigan, while mapleleaf viburnum occurs well to the north and south. Of the shrubs and small trees rarely or only occasionally seen in Shorewood Creek Woods, red elderberry, American fly honeysuckle, and Canada yew are typically northern while pawpaw is southern. Leatherwood and alternateleaf dogwood are like the viburnum in ranging widely both north and south.

The ground flora is rich in species and no doubt, as in other examples of mesophytic forest, provides an impressive spring flower display, although by mid-June several of the components of that display are no longer in evidence (their above-ground parts having shriveled up and disappeared for the year) and I am unable to comment on what occurs. Rue anemone, a species reaching its northern limit in southern Michigan, was recognized, and a species reaching its southern limit not far to the south of Berrien County, large shinleaf, considered state-threatened in Indiana.

The forest provides prime habitat for an orchid which has been found in the general area and nowhere else in Michigan. This is the cranefly orchid (Tipularia discolor), disjunct here in Berrien County by some 200 miles from the north edge of its range in southern Illinois and southern Indiana. It has been found at Grand Mere, Bridgman, and the Robinson Preserve near Lakeside, and is considered threatened in Michigan. I searched for it in July when it blooms but the only orchid I found was the weedy helleborine. Shorewood Hills residents with an interest in wildflowers should learn this species and keep an eye out for it.

The same north-south mix apparently occurs in the birds as well. On June 12 we heard the red-bellied woodpecker, a characteristically southern species, and the winter wren, a boreal species highly unusual this far south

at this time of year. Other southern species known to nest in beech-maple-hemlock forests in the southwest Michigan dunes include the hooded warbler and (very rarely) the worm-eating warbler. Additional northern species include the black-throated green warbler and Blackburnian warbler, both of which (together with the hooded) I have seen in June at Mt. Edwards just north of Warren Dunes State Park. Shorewood Creek certainly offers superb habitat to all these species. Several others, characteristic of mixed hardwood-conifer forest, have been known to nest rarely in southern Michigan and should be looked for. They include yellow-bellied sapsucker, red-breasted nuthatch, brown creeper, Canada warbler, and purple finch.

The only reason I can think of why some of these unusual species would not use the forest (other than the increasing rarity of some of them) is the forest's small size, which brings the birds into close proximity with humans and their artifacts. No doubt some (most?) of these birds require the privacy found in large tracts of forest. Though the woods at Shorewood Creek may be able physically to support these species, "psychologically" it may not.

In my preliminary report I pointed out that the woods has value as habitat for certain birds whose numbers are declining because they require mature forest, which is being destroyed both in their summer breeding range and in the tropics where they winter. On second thought, I suspect the woods is too small to be of much value. Scientists are finding that each forest species has a certain minimum size requirement; if a particular wood lot doesn't meet it, the birds avoid it. Of the 57 North American species that overwinter in mature, well-developed forest and are considered at grave risk, I listed 20 which might occur at Shorewood Creek. I will list them again, but with the caveat that probably most of them will <u>not</u> use the woods because it's too small. Those which do find its size adequate may well use

the woods and for them Shorewood Creek does provide needed habitat. (We know that the eastern wood pewee is one of them: we heard it on July 12.)

Great Crested Flycatcher
Acadian Flycatcher
Eastern Wood Pewee
Wood Thrush
Veery
Blue-gray Gnatcatcher
Solitary Vireo
Yellow-throated Vireo
Red-eyed Vireo
Black and White Warbler
Worm-eating Warbler
Black-throated Green Warbler
Cerulean Warbler
Blackburnian Warbler
Ovenbird
Louisiana Waterthrush
Hooded Warbler
American Redstart
Northern Oriole
Scarlet Tanager

I suspect the entomologist would find Shorewood Creek Woods of interest. The soft pulsing whir emanating from high in the forest canopy is produced by the green-winged cicada (Diceroprocta vitripennis), a tropical and Southern U.S. species reaching the northern limit of its range in the Lake Michigan dunes of Berrien, Van Buren, and Allegan Counties. The hemlock bush katydid (Scudderia fasciata) probably occurs, having been collected at Warren Dunes. This is a species found on hemlock in the eastern mountains, so far found in Michigan only in Berrien County.

2. The second reason for considering Shorewood Creek a quality natural area is its remarkably good condition, most of it, apparently, having never been cut. If the whole forest is not virgin in the strict sense, it certainly presents a virgin forest aspect. Many of the trees are unusually large, especially the tulips. Some of the beeches approach the size of those seen in nearby Warren Woods, core samplings from which showed a maximum age of 450 years. The sugar maples do not seem to me as large as those at Warren Woods, but they're still big.

Old-growth forest is rare in Michigan, this kind of old-growth forest practically non-existent. I don't know of another example--this may well be it! Warren Woods has virgin forest but the trees that compose it are beech and maple; there is no tulip and no hemlock. The Robinson Preserve has "virgin" forest but there is even less of it than at Shorewood Creek, and the hemlock is lacking. Warren Dunes State Park has forest with the same species as Shorewood Creek's but the hemlock's presence is very much reduced and, while parts are mature, they're hardly "virgin". At Shorewood Creek the visitor has the rare chance to see what the pioneers saw when they first arrived along the shore of Lake Michigan.

For the two reasons cited above, Shorewood Creek Woods should be preserved. Despite its small size, I think it's significant enough for the state to know about it, and will be submitting a site survey form on it to the Michigan Natural Features Inventory. I encourage the Shorewood Hills residents to continue to protect it. I see nothing wrong with the construction of a path through it, to help the residents and their guests enjoy it more while directing traffic through it and away from random use. I would discourage any tampering that goes beyond this. This would include allowing an increase in the flow of water in the creek, which would exacerbate bank erosion and jeopardize many large trees.

Leon Schaddelee

Addendum:

Swink and Wilhelm, in their 1979 edition of Plants of the Chicago Region, provide a quantitative method for assessing the quality of natural areas. I thought it would be interesting and helpful to apply it to Shorewood Creek Woods; (they include Berrien County in the Chicago Region).

Each plant species is assigned a rating of 0 to 10, depending on its place in the Chicago-Region flora, 0 being reserved for ubiquitous species, 10 for species "which not only typify stable or near-climax conditions but also exhibit relatively high degrees of fidelity to a narrow range of syn-ecological parameters" (p. 851). A value of 15 is assigned to species rare in the region, 20 to species threatened or endangered in it. The sum of these values is divided by the total number of species to get the mean rated quality. Recognizing that the list for Shorewood Creek is incomplete, so that our results are preliminary, the mean rated quality for Shorewood Creek is 7.8. This number is multiplied by the square root of the total number of species to give us the Rating Index; for Shorewood Creek this number is 66.6. "Areas which rate in the 50's and higher are of paramount importance; such areas are extremely rare, probably occupying less than 0.02 per cent of the total land area in the Chicago Region" (p. 857). As an example of a "top" natural area, Swink and Wilhelm cite an area of 35 to 40 acres at Clarke Station, in Lake County, Indiana, which has an Index of 73.

Notice that this method is based entirely on the number and character of the native plants growing at a particular site and has nothing to do with things like size of trees or size of the site itself. Because it neglects such factors, I'm not altogether pleased with it; nevertheless, it's a useful tool for objectively comparing one area with another. Additions to the species list for Shorewood Creek will no doubt raise the Index even more, further confirming the site's status as (at least by Swink and Wilhelm's criteria) first-rate.

VASCULAR PLANTS OBSERVED IN THE SHOREWOOD CREEK WOODS, 6/12/91 AND 7/12/91

1. These are native species only. A few alien (weed) species were noted as well, especially barberry (Berberis sp.); English ivy (Hedera helix), abun. on some of the slopes; and along the creek, helleborine orchid (Epipactis helleborine [latifolia]).

2. Families are listed in the order that they appear in Gleason's The New Britton and Brown Illustrated Flora, 1952.

3. Presence status is noted for most species. This designation is based on what I observed in the woods, i.e. "rare" means rare at Shorewood Creek according to my perception.

4. Small swampy areas at the base of the slopes, fed by spring water, constitute a microhabitat within the forest. They account for the presence of a number of wetland species not otherwise members of the forest community. These are noted by a W (for Wet).

5. While the list no doubt includes most of the species at Shorewood Creek, it is far from complete. I challenge someone to add to it and move it towards completion.

*6. The number following each species is its numerical rating for evaluating site quality.

Lycopodiaceae		
Lycopodium obscurum (Ground Pine)	one good-sized colony noted	15
Polypodiaceae		
Dryopteris marginalis (Marginal Shield Fern)	occ.	15
D. noveboracensis (New York Fern)	big colonies	15
Onoclea sensibilis (Sensitive Fern)	occ. W	8
Polystichum acrostichoides (Christmas Fern)	rare	10
Taxaceae		
Taxus canadensis (Canada Yew)	uncom., near mouth	15
Pinaceae		
Tsuga canadensis (Canada Hemlock)	a dominant	15
Gramineae		
Hystrix patula (Bottlebrush Grass)		5
Cyperaceae		
Carex laxiculmis (Spreading Sedge)	several colonies noted	15
C. plantaginea (Plantainleaf Sedge)	com./abun.	15
C. prasina (Drooping Sedge)		20
Araceae		
Arisaema atrorubens [triphyllum] (Jack-in-the-pulpit)	uncom.	5
Liliaceae		
Maianthemum canadense (Canada Mayflower)	com.	15
Polygonatum pubescens [biflorum] (Solomon's Seal)		7
Smilacina racemosa (False Solomon's Seal)	com.	2
Smilax ecirrata (Upright Carrion Flower)	rare	3
Trillium [flexipes and/or grandiflorum]		6 or 8
Uvularia grandiflora (Large Bellwort)	rare	7
Betulaceae		
Betula lutea (Yellow Birch)	a few	15
Ostrya virginiana (Hop Hornbeam; Ironwood)	com.	5

* These numbers are taken from The Evaluation Checklist in Swink & Wilhelm's Plants of the Chicago Region, The Morton Arboretum, 1979 (pp. 862-880).

Fagaceae
Fagus grandifolia (American Beech) a dom. 10
Quercus rubra (Red Oak) 7
Ulmaceae
Ulmus americana (American Elm) 3
Urticaceae
Boehmeria cylindrica (False Nettle) W 2
Polygonaceae
Tovara virginiana (Virginia Knotweed) 2
Magnoliaceae
Liriodendron tulipifera (Tulip Tree) a dom. 10
Annonaceae
Asimina triloba (Pawpaw) very local; two colonies noted 15
Ranunculaceae
Actaea pachypoda (White Baneberry; Doll's Eyes) occ. 7
Aquilegia canadensis (Canada Columbine) a few 5
Anemonella thalictroides (Rue Anemone) 7
Caltha palustris (Marsh Marigold) W 5
Hepatica acutiloba (Sharplobe Hepatica) com. 6
Ranunculus recurvatus (Hooked Buttercup) rare 5
R. septentrionalis (Swamp Buttercup) W esp. com. 4
Berberidaceae
Caulophyllum thalictroides (Blue Cohosh) loc. abun. 8
Podophyllum peltatum (Mayapple) local 5
Lauraceae
Lindera benzoin (Spicebush) a dom. 7
Sassafras albidum (Sassafras) 6
Papaveraceae
Sanguinaria canadensis (Bloodroot) uncom. 6
Cruciferae
Arabis laevigata (Smooth Bank Cress) occ. 3
Crassulaceae
Penthorum sedoides (Ditch Stonecrop) W 5
Saxifragaceae
Mitella diphylla (Bishop's Cap; Miterwort) 10
Hamamelidaceae
Hamamelis virginiana (Witch Hazel) a dom. 8
Platanaceae
Platanus occidentalis (Sycamore) rare (1 or 2 seen) 10
Rosaceae
Prunus serotina (Black Cherry) rare, at least as a fullgrown tree 1
Fabaceae
Amphicarpa bracteata (Hog Peanut) local 4
Geraniaceae
Geranium robertianum (Herb Robert) rare 10
Celastraceae
Euonymus obovatus (Running Strawberrybush) abun. 7
Aceraceae
Acer saccharum (Sugar Maple) a dom. 5
Balsaminaceae
Impatiens capensis (Orange Jewelweed; Spotted Touch-me-not) com. W 3
Vitaceae
Parthenocissus quinquefolia (Virginia Creeper) abun. 2
Vitis riparia (Riverbank Grape) abun. 4

Tiliaceae		
Tilia americana (Basswood)		5
Violaceae		
Viola sp. [pubescens and/or canadensis]	com.	10 or 15
Thymeleaceae		
Dirca palustris (leatherwood)	rare	15
Onagraceae		
Circaea quadrisulcata (Enchanter's Nightshade)	abun.	0
Umbelliferae		
Sanicula sp. (Black Snakeroot)		
Cornaceae		
Cornus alternifolia (Alternateleaf Dogwood)		9
Ericaceae		
Monotropa uniflora (Indian Pipe)	rare	15
Pyrola elliptica (Large Shinleaf)	rare	10
Primulaceae		
Lysimachia ciliata (Fringed Loosestrife)	rare W	4
Oleaceae		
Fraxinus americana (White Ash)	rare as large tree, com. in shrub layer	5
Labiatae		
Prunella vulgaris (Self Heal; Heal All)		0
Scrophulariaceae		
Mimulus ringens (Monkeyflower)	rare W	6
Orobanchaceae		
Conopholis americana (Squaw Root; Cancer Root)	occ.	15
Epifagus virginiana (Beech Drops)	com.	10
Rubiaceae		
Mitchella repens (Partridgeberry)		15
Caprifoliaceae		
Lonicera canadensis (American Fly Honeysuckle)	rare, near mouth	15
Sambucus canadensis (Elderberry)	rare W	1
S. pubens (Red Elderberry)	a few, esp. near mouth	10
Viburnum acerifolium (Mapleleaf Viburnum)	abun., a dom.	9
Compositae		
Prenanthes alba (White Lettuce; Lion's Foot)	com.	5
Solidago caesia (Bluestem Goldenrod)	com.	7

L. Schaddelee

Short Resume of LEON SCHADDELEE May 1991

Personal

Birthdate: March 9, 1945
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Education

Eastern Christian Schools
North Haledon, NJ 1950 to 1963

Calvin College
Grand Rapids, MI 1963 to 1967, 1969
Major: English Bachelor of Arts, June 1967

Michigan State University
East Lansing, MI 1974 to 1975
Major: Environmental Interpretation Master of Science, June 1975
(Department of Parks & Recreational Resources)

Employment

1976 to 1978. Buchanan Public Schools, Buchanan, MI. Teacher/naturalist. Taught Advanced Natural Science to "gifted & academically talented" high school students at Fernwood, a nature center near Niles, MI, with state grant funding.(which expired in 1978).

Summer 1978. Pleasant Valley Outdoor Center, Woodstock, IL. Camp Naturalist.
Summer 1979. Camp Makisabee, Eau Claire, MI. Camp Naturalist.
Both summers I inventoried, mapped, and designed interpretive plans as well as ran the summer programs.

1978 to present. Benton Harbor Area Schools, Benton Harbor, MI. Teacher. I have taught mostly science and social studies at the junior high level.

Summer 1980. The Nature Conservancy. Preserve Design Intern. Inventoried preserves and potential preserves for vascular plants, birds, reptiles & amphibians, butterflies, etc.; mapped them to show community boundaries & rarities; evaluated site quality.

Summer 1981. Michigan Natural Features Inventory. Field worker. Investigated sites where historical records indicated rare species occurred, to see if they were still there.

Summers 1982, 1983, 1985, 1986, 1987, 1989. The Nature Conservancy and Michigan Natural Features Inventory. More of the same!

Summer 1991. Ottawa County Parks & Recreation Commission.
White Water Associates, Inc., Amasa, MI.
More inventory work, find rare species.

* Master's Thesis: An Interpretive Model for the Quality Natural Area, Developed for the Allegan Pine Plains Ecosystem Complex

Significant finds include Maryland Meadow Beauty, new to Michigan; and a number of species listed as extinct or possibly extinct in Michigan, including Dwarf Burhead, Three-ribbed Spikerush, and Kirtland's Snake.

Reference

Most of the people I've worked for are no longer with the agency that employed us and I no longer know where they are, but you can contact:

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