

Flora of River Rouge Park Detroit, Michigan

A Baseline Study

Prepared for the Friends of Belle Isle

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Yellow Coneflowers in Prairie Planting Southwest of Tireman Road and Outer Drive

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Prepared by:
King & MacGregor Environmental, Inc.
5880 N. Canton Center Road, Suite 462
Canton, Michigan 48187
(734) 354-0594 Fax: (734) 354-0593

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Introduction

This report presents the results of an initial survey of the flora of River Rouge Park in the City of Detroit. The Park is a unit of the Detroit Department of Parks and Recreation. This report was prepared for the Friends of Belle Isle using funds provided by the US Environmental Protection Agency, Region 5.

The survey focused on the least disturbed natural areas in the Park. Some of these areas were visited several times between August 2003 and August 2004. Lists were compiled of all the plant species observed in each area.

In the interest of scientific documentation, voucher specimens were collected of most of the rare plants discovered in the Park. In most cases, only portions of the plants were collected, and in no case was any population harmed. The pressed specimens (with labels) were submitted to the collection of the University of Michigan Herbarium in Ann Arbor. Copies of the labels are appended to this report.

Overview of the Park

River Rouge Park is located along the Rouge River, on the west side of Detroit. CSX railroad forms the northern boundary and Warren Road forms the southern boundary. The total area of the Park is approximately 1200 acres (nearly two square miles). The developed portions of the Park include a golf course, golf driving range, public swimming pools, baseball fields, picnic areas, fly zone for radio-controlled airplanes, the City's plant nursery, a day camp, Lessenger Junior High School, scout camping area (Scout Hollow), a mounted police stable, police pistol range, public archery range, toboggan run, planted native prairie (cover photo), landfill, and extensive areas of mowed grass. The natural areas are largely confined to the Rouge River floodplain.

Natural Areas

The five highest quality natural areas in the Park are briefly described in this section. The names used for three of the areas . Smith Grove, Greenwood Valley, and The Wildwood . follow the nomenclature used for these areas on a map of the Park published in 1960.

Railroad Woods. This large woodlot is located on the south side of the CSX railroad at the north end of the park. The Rouge River forms the woodlot's western boundary, while the eastern boundary is a steep slope carved out by the early post-glacial river. To the south lies the Rouge Park golf course. This woodlot is rarely visited because few people are aware of its existence; and, protected by the golf course fence, it is not readily accessible. The Railroad Woods is an old growth floodplain forest. The principal trees are black maple, beech, and black walnut. Many of the trees are 2-3 feet in diameter; and some are even larger (such as a tulip tree four feet in diameter). Most of the woodlot consists of non-wetland terraces that are 3-4 ft. higher than the flood channels that dissect the woods. The flood channels support a wetland flora dominated by touch-me-not (*Impatiens capensis*)

and wood-nettle (*Laportea canadensis*). This woodlot was investigated only once in the course of the present survey (late August). However, the author recalls from twenty-five years ago that it is notably rich in spring wildflowers. Although no listed rare plants were found in this woodlot, it does contain a colony of Canada plum (*Prunus nigra*), an uncommon shrub in southeastern Michigan.

Smith Grove. This an open grove of trees located on high ground between the Ashcroft-Sherwood Drain and one of its tributaries; southwest of West Chicago and Outer Drive. The grove is notable for its many large trees (including beeches), some more than 100 years old.

Joy Road Sedge Meadow: This is a small sedge meadow located in the Rouge floodplain, a short distance south of Joy Road and east of Outer Drive. It is dominated by a single species of sedge, which appears to be *clear-scale sedge* (*Carex hyalinolepis*), although no fertile individuals have been observed. A small stream meanders through the meadow (see photos). White-tailed deer favor this meadow for sleeping, compressing the sedges where they lie. Although no rare plants were found in this meadow, the sedge plant community is unusual in the Park.

Greenwood Valley. The area labeled *Greenwood Valley* in this report is the southern one-third of the area so-named in the 1960 map of the Park. It is an area of forested floodplain located on the west side of the River, extending from the southern end of South Island (see map) southward to the sharp bend in the river north of Warren Road. The western boundary is the steep wooded slope formed by the early post-glacial river, while the eastern boundary is the river itself. The southern part of Greenwood Valley contains a small sunny pond that receives water from a stream as it leaves a ravine. Buttonbush (*Cephalanthus occidentalis*) and colonies of whorled dock (*Rumex verticillatus*) grow out of the duckweed-covered water. A small meandering stream conducts water from the pond to the Rouge River (see photo). In the floodplain forest north of the pond, a number of rare plants have been found, including James sedge (*Carex jamesii*), nodding rattlesnake-root (*Prenanthes crepidinea*), Virginia water-horehound (*Lycopus virginicus*), Shumard oak (*Quercus shumardii*), and burning-bush (*Euonymus atropurpurea*). These are described in more detail in the next section. Wood mint (*Blephilia hirsuta*), an uncommon member of the mint family, occurred in this woods 25 years ago and may still be present. Large, old, black maples (*Acer saccharum* ssp. *nigrum*) and northern hackberries (*Celtis occidentalis*) are notably common in the Greenwood Valley.

The Wildwood: This old growth woodland is located on the east side of the river just north of Warren Road. Many of the trees here are at least a century old. The Wildwood area extends northward as far as the small dam across the river (former footbridge); and eastward as far as the steep wooded slope that was formed by the early post-glacial river. Most of this area is within the floodplain, except for a high wooded peninsula in the northeastern sector, which bounded by a steep-sided ravine to the east and south. Red oak (*Quercus rubra*) and white oak (*Quercus alba*) are common on this highland. The floodplain contains a state-threatened blue-flowered lettuce species (*Lactuca floridana*), as well as a large population of

muskingum sedge (*Carex muskingumensis*), which is an uncommon species in southeastern Michigan. Bur-cucumber (*Sicyos angulatus*), another uncommon species, occurs at the big bend in the river.

Rare Plants Discovered in the Park

Several rare plant species were found in the Park in the course of this survey. One of them is a rare mid-western plant discovered for the first time in Michigan. Three of them are Michigan Threatened species, protected by state law. Three are Special Concern species, which, though uncommon, are not rare enough to receive legal protection. The remaining species are regionally uncommon, but lack official status.

Nodding Rattlesnake-root (*Prenanthes crepidinea*). The first Michigan discovery of this species occurred in Rouge Park in May 2004. Nodding rattlesnake-root is a mid-western species that is uncommon throughout its range. In Ohio, it is listed as Potentially Threatened; in Indiana as State Rare; in Kentucky as Threatened; in New York as Endangered; in Wisconsin as Endangered. It was formerly listed as Endangered in Pennsylvania until botanists there learned to recognize its distinctive short-lived vernal leaves. Subsequently, they were able to find a sufficient number of Pennsylvania populations to de-list it in that state.

The unusual life cycle of nodding rattlesnake-root has only recently been elucidated. In May, it produces colonies of leaves, each leaf arising from a small tuber. These leaves are large, triangular, and coarsely toothed (see photos in this report). Their long leaf stalks have a broad wing of thin tissue. The leaves photosynthesize for about one month in the spring, and then die, leaving only the underground tubers to continue existence until the following spring. For several years this cycle is repeated. Eventually, whenever the tubers succeed in storing up sufficient energy (assuming there is sufficient light), they produce a flowering stalk. These stalks begin developing in June, and actual flowering takes place from late August to early September. The flowering stalk can be as much as eight feet tall and bears many nodding cream-colored flowers. After setting seed, the whole plant dies. Given the infrequency of flowering and the brief window of opportunity for observing spring leaves, it is not surprising that this species has eluded detection in Michigan until now. Future surveys for this species should be conducted in May by people who have familiarized themselves with the distinctive vernal leaves. Unfortunately, it was not until June 2004 that the vernal leaves collected in May were positively identified, so the full extent of this species within in Rouge Park remains to be determined. The Rouge colonies produced no flower stalks in 2004.

Cup-plant (*Silphium perfoliatum*) . Michigan Threatened. There is a large colony of this tall, yellow-flowered, member of the sunflower family south of Tireman, on the west side of the river. It is growing in a sunny portion of the floodplain. A few individuals also occur at the base of the former sledding hill in Scout Hollow. Formerly, a colony of this species occurred just north of Joy Road, on the east side of the river. This colony, which was first observed in the early 1970s, declined throughout the 1990s as the area became wooded and shaded. It could not be found in 2004.

Virginia Water-horehound (*Lycopus virginicus*) . Michigan Threatened. A single plant of this southern member of the mint family was observed in the Greenwood Valley floodplain forest. It is very rare in Michigan, having been collected only a handful of times.

Woodland Lettuce (*Lactuca floridana*) . Michigan Threatened. A single plant of this southern cousin of salad lettuce was observed in The Wildwood area on August 29. It had finished flowering and its seed was mature.

Burning-bush (*Euonymus atropurpurea*) . Michigan Special Concern. There are at least two small clones of this species in the Greenwood Valley area. One of them was in flower in mid-June 2004.

James' Sedge (*Carex jamesii*) . Michigan Special Concern. Two populations of this sedge, one large and one small, were found in the Greenwood Valley area. The larger population has colonized the disturbed soil around a large hole that was excavated many years ago atop a former horse trail.

Shumard Oak (*Quercus shumardii*) . Michigan Special Concern. A single tree of this species was observed in the Greenwood Valley floodplain forest. Another probable Shumard oak occurs farther north on the edge of the river. This species hybridizes with red oak (*Quercus rubra*), which can make identification challenging.

Other Regionally Uncommon Plants

In addition, to the officially listed rare plants, a number of other plants that are uncommon in southeastern Michigan occur in the park. These include whorled dock (*Rumex verticillatus*), big shellbark hickory (*Carya laciniosa*), clear-scale sedge (*Carex hyalinolepis*), pawpaw (*Asimina triloba*), bur-cucumber (*Sicyos angulatus*), spring avens (*Geum vernum*), harbinger-of-spring (*Erigenia bulbosa*), chinkapin oak (*Quercus muehlenbergii*), green dragon (*Arisaema dracontium*), muskingum sedge (*Carex muskingumensis*), white-bear sedge (*Carex albursina*), and Canada plum (*Prunus nigra*).

In the course of this survey, a southern woody vine called *heartleaf ampelopsis* (*Ampelopsis cordata*) was found at the foot of the former sledding hill in Scout Hollow. This member of the grape family has not previously been reported from Michigan. Its native range extends into southern Ohio. It is possible that migratory birds introduced the seeds to Rouge Park.

Focus of Future Botanical Work

Future botanical investigations in Rouge Park should seek out additional populations of the rare species that were found in the course of the present study; especially nodding rattlesnake-root (*Prenanthes crepidinea*), Virginia water-horehound (*Lycopus virginicus*), and woodland lettuce (*Lactuca floridana*). A spring investigation of the Railroad Woods and The Wildwood would likely be productive.

Other uncommon Michigan plants that might occur in the Park and should be sought are Virginia-snakeroot (*Aristolochia serpentaria*), beak grass (*Diarrhena americana*), Davis sedge (*Carex davisii*), blue ash (*Fraxinus quadrangulata*), rock elm (*Ulmus thomasi*), and mullein foxglove (*Dasistoma macrophylla*). The latter was recently discovered in Michigan in the Grand River floodplain.

From a management perspective, the primary concern in the Park is non-native invasive species, especially garlic mustard (*Alliaria petiolata*). This European weed now dominates the regularly flooded areas of the Park from spring through summer. A colony of another invasive plant, Japanese knotweed (*Polygonum cuspidatum*), was observed in the floodplain of the Ashcroft-Sherwood Drain, east of Outer Drive. This colony should be sprayed with herbicide.

A long-term goal of the City should be the removal of the landfill along Joy Road (which dates from the 1980s). This landfill is currently fenced off. Following removal, the original sandy prairie should be restored.

Notes on the Plant List

The site numbers in the plant list correspond to the numbers shown on the map included with this report. The plant list indicates whether or not a species is native to Michigan and gives the wetland indicator code for each species. These codes were established by the US Fish & Wildlife Service and the Michigan Department of Natural Resources, as published in *Floristic Quality Assessment with Wetland Categories and Examples of Computer Applications for the State of Michigan*, revised 2nd edition (Michigan Department of Natural Resources, October 2001). By assigning a wetland indicator number to each wetland code designation, one can calculate an overall wetland index for any site, simply by averaging the numbers. The wetland codes and numbers are as follows (from wettest to driest):

Wetland Indicator Code	Wetland Indicator No.
OBL (obligate wetland species)	-5
FACW+ (facultative wetland species - wetter)	-4
FACW (facultative wetland species - medium)	-3
FACW- (facultative wetland species - drier)	-2
FAC+ (facultative species - wetter)	-1
FAC (facultative species - medium)	0
FAC- (facultative species - drier)	1
FACU+ (facultative upland species - wetter)	2
FACU (facultative upland species - medium)	3
FACU- (facultative upland species - drier)	4
UPL (obligate upland species)	5

The plant list also includes a coefficient of conservatism for each species. This is a number from 0 to 10 that purports to indicate the degree of fidelity of a species to a presettlement type of habitat. The designations are fairly subjective and tend to correlate strongly with relative rarity. Non-native species are always given a zero while conservative (generally rare) species are given high numbers. The coefficients of conservatism were originally published by the MDNR in the above-referenced work.

Evidence of Porcupines

In the course of the botanical survey, extensive bark damage to some black maples was noted in the Greenwood Valley area of the Park (see photos in this report). The damage matches typical porcupine feeding damage. Large plates of bark had been gnawed off, leaving neat piles of chips at the tree base. Grooves left by the incisor teeth were clearly visible. The inner bark of maples is known to be a favorite food of porcupines. The occurrence of porcupines in Detroit would represent a major range extension for this species, which generally does not occur south of the latitude of Midland (100 miles to the north). However, porcupines did occur historically in southern Michigan.

Conclusions

The botanical survey of River Rouge Park conducted in 2004, though limited in scope, resulted in the discovery of an unusual number of rare plants, including three state-threatened species, three Special Concern species, and one very rare mid-western species discovered for the first time in Michigan; as well as a southern vine not previously reported from Michigan. Undoubtedly other rare plants await discovery. The presence of old growth forests further highlights the Park's regional importance.

Rouge Park's natural areas are important to many animal species. In particular, large numbers of songbirds use the floodplain forests for resting and feeding during migration. White-tailed deer and . evidently -- porcupines also occur in the Park.

The natural habitats in River Rouge Park deserve greater appreciation. They are an outstanding asset for the City of Detroit and should be carefully protected and managed. Fortunately, the Park has a strong advocate in The Friends of the Rouge organization, which has worked diligently to inform and educate the public about the Park's resources and encourage public involvement through programs and special events.

Attachments

Park map
Overall Plant List
Plant List by Location
Labels of Pressed Plants Submitted to University of Michigan Herbarium
Photographs