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## **ERRATA**

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The photograph of a Roundleaf Monkey-flower on page 83 of the June 2002 issue was taken by Elizabeth Reimer, not Eric Reimer as credited.



## NEW ROUNDLEAF MONKEY-FLOWER (*MIMULUS GLABRATUS*) OCCURRENCES IN MANITOBA

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### Introduction

Roundleaf Monkey-flower (*Mimulus glabratus*) is a nationally rare plant found in groundwater seepage areas.<sup>4</sup> In North America, north of Mexico, the species ranges from southeastern Alberta and Montana to southern Quebec, and southeast through Michigan and Illinois to Texas and California.<sup>4</sup> Prior to surveys conducted in 2001, the species was known from eight locations in the Prairie Provinces: Sounding Lake in southeastern Alberta (Ksenija Vujnovic, Alberta Natural Heritage Information Centre, pers. comm.), four

occurrences in the Qu'Appelle River Valley in southeastern Saskatchewan (Jeff Keith, Saskatchewan Conservation Data Centre, pers. comm.), and three records along the Assiniboine River in southwestern Manitoba.

NatureServe considers Roundleaf Monkey-flower to be possibly extirpated from Ontario, and critically imperiled in all other Canadian provinces in which it occurs (Quebec, Manitoba, Saskatchewan and Alberta).<sup>4</sup> Nevertheless, the species is considered globally secure. The species is



Figure 1. Roundleaf Monkey-flower, Spruce Woods Provincial Park.

Eric Reimer

not currently listed under any province's endangered species act and has yet to be considered by the Committee on the Status of Endangered Wildlife in Canada.

### Species Description

Roundleaf Monkey-flower, a member of the figwort family, is a small, low, branching and mat-forming perennial wetland plant (Fig. 1).<sup>3</sup> The weak, reddish stems are smooth and support nodal roots. The leaves are opposite, generally round, 0.8-3.0 cm wide, and pubescent when young, but smooth at maturity. The small (0.9-1.5 cm long), bright yellow flowers occur in the axils of the leaves. Flowering occurs from mid-July to mid-August. There are four varieties recognized, but only var. *jamesii* is present in the Prairie Provinces.<sup>2</sup>

### Methods

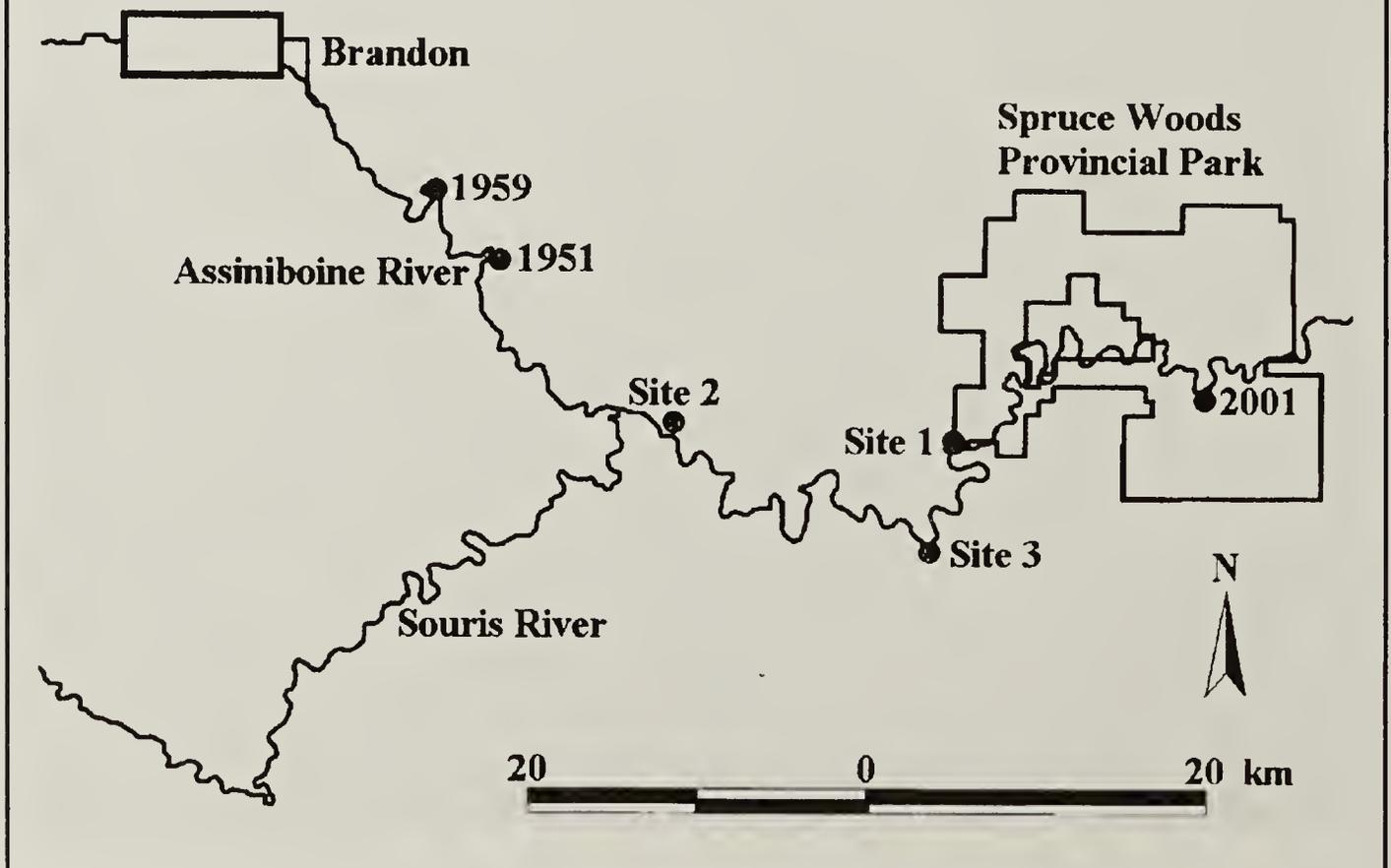
All known Roundleaf Monkey-flower populations in Manitoba occur in cold spring complexes adjacent to the Assiniboine River where it passes through sand deposits.

Groundwater seepage in these areas, and the subsequent flow of water towards the river, result in bank and sandhill erosion. As sand falls down unvegetated banks and is washed away, concave 'bowls' containing springs are formed. Prior to field work, aerial photographs, topographic maps and a toponymic database were used to identify major spring complexes in sandy areas of southwestern Manitoba. These large formations, as well as numerous smaller springs encountered incidentally, were accessed by road, on foot and by canoe. Twenty-seven springs adjacent to the Assiniboine River between Brandon and the eastern edge of Spruce Woods Provincial Park were surveyed, as were four spring complexes adjacent to the Souris, Boyne and Pembina Rivers. Surveys took place July 17 to August 19, 2001.

### Results

Of the three previously-known Roundleaf Monkey-flower records, one was confirmed as extant. This population, located in eastern

**Figure 2. Known occurrences of Roundleaf Monkey-flower in Manitoba. Sites discovered in 2001 are indicated. The year of last observation of previously known populations is noted.**



Spruce Woods Provincial Park, was first recorded in 1943 and last observed in 1993. Springs in the vicinity of Brandon were searched, without success, in an attempt to relocate two records last observed in 1951 and 1959, respectively. New populations of Roundleaf Monkey-flower were discovered at three sites, all within spring complexes associated with sandy bowl formations adjacent to the Assiniboine River (Fig. 2).

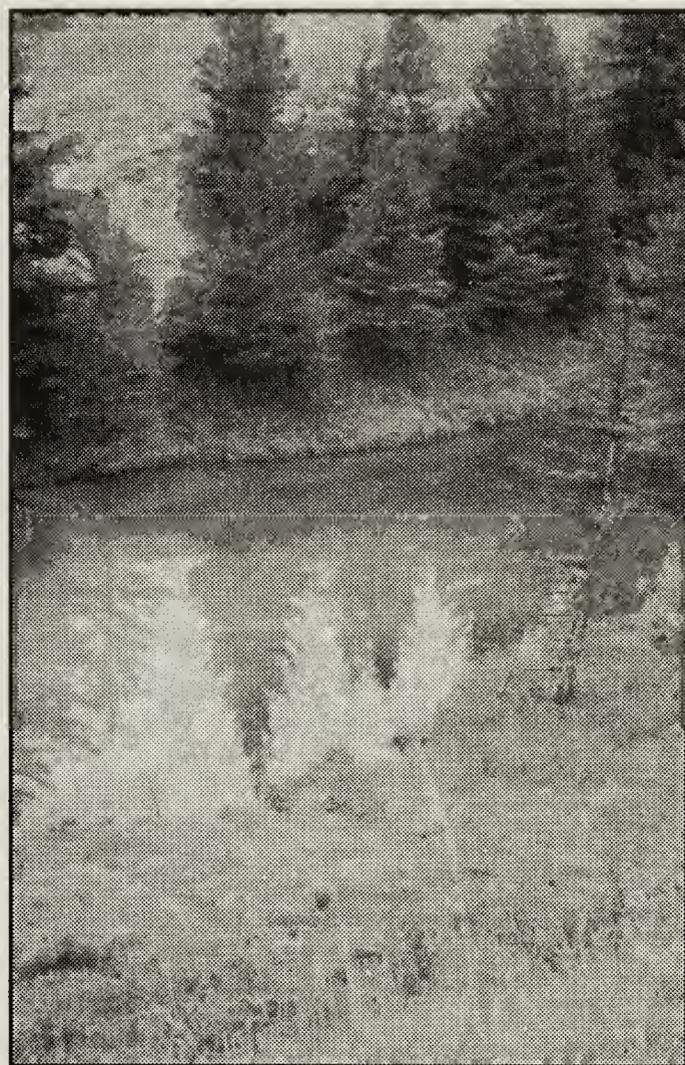
### Site 1

The largest population of Roundleaf Monkey-flower surveyed in 2001 was in a large sandy bowl formation 500 m north of the Assiniboine River in the southwestern corner of Spruce Woods Provincial Park, adjacent to a well-traveled hiking trail (Fig. 3). Most of this population was concentrated in a water moss (*Calliergon* sp.)-dominated apron around a beaver pond at the head of the spring. Floating mats also existed adjacent to beaver dams and at the head of smaller, secondary springs in the immediate vicinity.

A second bowl formation, containing a smaller spring complex, occurs 150 m to the southeast. Roundleaf Monkey-flower was observed here, as well, growing in a non-treed area immediately downstream from a stand of Black Spruce (*Picea mariana*) at the head of the spring. Relatively few individuals were found; scattered mats were observed along the edges of streamlets overtopped by Spotted Joe-Pye Weed (*Eupatorium maculatum* var. *maculatum*) and Field Horsetail (*Equisetum arvense*). The area immediately surrounding Site 1 is dominated by mixed grass prairie in a largely natural state.

### Site 2

The Roundleaf Monkey-flower population at this site was associated with a large spring complex extending back 1000 m from the sandy north bank of the Assiniboine River, immediately east of its confluence with the Souris River. Beaver dams near the headwaters and at several



**Figure 3.** Springs within a sandy bowl formation, Spruce Woods Provincial Park. Roundleaf Monkey-flower is common in the grassy apron surrounding the spring-fed pond.

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points downstream have formed a series of step-like pools. Thousands of Roundleaf Monkey-flower stems were observed in the wetlands that fringe these pools. Spotted Joe-Pye Weed, Spotted Jewel-weed (*Impatiens capensis*), Pennsylvania Bitter-cress (*Cardamine pensylvanica*), sedges (*Carex* spp.), and willows (*Salix* spp.) were common associates at this site. This population lies within 200 m of the largely intact mixedgrass prairie of Canadian Forces Base Shilo.

### Site 3

A very small Roundleaf Monkey-flower population was observed within a fjord-like formation eroded 500 m back from the south bank of the Assiniboine River, north-northwest of the town of Glenboro. Only one patch, 0.6 m by 0.3 m, was encountered in a small mossy opening in an otherwise Black

Spruce-dominated, spring-fed boggy area. This population is situated on a quarter section of mixed forest interspersed with open grasslands and cropland. The majority of flowering had already occurred by the time this site was surveyed on August 10.

Other than the sites reported here, searches of 31 spring complexes in southwestern Manitoba yielded no other new Roundleaf Monkey-flower populations. The characteristics of these springs varied widely. The majority were relatively low volume, unvegetated springs located immediately adjacent to the Assiniboine River. Little to no bowl formation or water impoundment was apparent at these sites. Some of the springs, however, shared many topographic and physiognomic features with springs in which Roundleaf Monkey-flower was found.

Direct threats to Roundleaf Monkey-flower populations were not observed at any of the sites visited in 2001, and human impact within surveyed spring complexes appeared minimal.

## Discussion

Activities that could place springs in Canada at risk include logging operations, oil well development, stock watering, recreational development (spas), and water-bottling.<sup>1,5</sup> Groundwater contamination by chemicals used in agriculture and industry may also threaten the biota of springs.<sup>1</sup> Presumably, aquifer drawdown would negatively affect spring flow and the associated biodiversity as well.

Fortunately, the landforms with which Manitoba Roundleaf Monkey-flower populations are associated are relatively inaccessible; the steep slopes and inundated sandy soil mean these areas are unlikely to attract human recreation or economic activities. While some irrigation of crops occurs in the vicinity of Roundleaf Monkey-flower containing springs in Manitoba, the potential for aquifer drawdown, at least in Spruce Woods Provincial Park and at Site 2, is low due to the large proportion of

surrounding land that is not in agricultural production (Frank Render, Manitoba Conservation, pers. comm.).

The inconspicuous appearance of Roundleaf Monkey-flower, combined with the difficult physical access to most populations, may contribute to the paucity of reports of the species from Manitoba. Future surveyors should note the topographic features common to springs containing Roundleaf Monkey-flower reported here, and focus searches for additional populations on similar areas. Surveys of major spring complexes adjacent to the Assiniboine River west of Brandon, and along the Souris River, may yield new occurrences. In addition, further attempts should be made to relocate two historically-known populations in the large sandy spring complexes east of Brandon. More detailed examinations of population size, habitat requirements, associated vegetation, and potential threats are required for known Roundleaf Monkey-flower populations.

## Acknowledgements

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## BUR OAK – AN UNCOMMON NATIVE TREE IN SASKATCHEWAN

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Native oak trees in Saskatchewan? This may even surprise some naturalists in the province. But Bur Oaks (*Quercus macrocarpa* Michx.) are indeed indigenous here. They are, however, one of the least frequent and most regionally restricted of our Saskatchewan native trees. Probably only the Rocky Mountain Juniper (*Juniperus scopulorum* Sarg.) is a rarer native tree in the province.<sup>3</sup> Natural Bur Oak stands in Saskatchewan are found at intermittent riparian sites only near the province's eastern border east of longitude 103° W, extending from near the international boundary (lat. 49 ° N), northward to Porcupine Plain, about lat. 52° 30' N (Map 1). Except for a small stand near Porcupine Plain, the known natural stands of Bur Oak in Saskatchewan are limited to the overall Assiniboine River watershed, which includes the Souris and

Pipestone drainages. Even the Porcupine Plain site is located not far north of the watershed divide between the Assiniboine and Red Deer River drainages.

The extent of this species range has been underestimated in a number of well-known publications. The recently published Flora of North America, Volume 3, incorrectly mapped the range of this species as barely touching Saskatchewan's southeasternmost corner.<sup>10</sup> Also the recent handbook, Plants of the Western Boreal Forest & Aspen Parkland, misstated the Saskatchewan range of Bur Oak as being only along the Qu'Appelle River system.<sup>7</sup> Breitung, Boivin and Scoggan cited the species as occurring in southeastern Saskatchewan north to the Qu'Appelle River Valley, noting its occurrence also along the Souris and Pipestone valleys.<sup>2, 1, 11</sup>