

THE NATIVE LADY'S-SLIPPER ORCHIDS OF SASKATCHEWAN

by VERNON L. HARMS*

Among the most beautiful and interesting wildflowers of Saskatchewan are the various species of Lady's-slipper Orchids. These, with the Calypso Orchid, represent the largest flowered native orchids in Saskatchewan, where most members of the orchid family have relatively small, inconspicuous flowers. As all orchids, the lady's-slipper flower is epigynous with the sepals and petals arising above the inferior ovary (Figure 1). The two fertile stamens are attached on either side of a petal-like sterile stamen (staminodium) and all are fused to the style to form a column with the two anthers on either side below the stigma. The three petals include two slender, lateral petals and a lower petal called the lip which is modified into a pouch-like structure. Although three sepals are basically present, in most lady's-slipper species the two lower ones are more or less fused to form what appears to be only two sepals: an upper and a lower one (Figure 1).

There are four native species of lady's-slippers known from Saskatchewan: the Yellow Lady's-slipper (*Cypripedium calceolus* var. *pubescens*), the Stemless Lady's-slipper (*Cypripedium acaule*), the Northern Lady's-slipper (*Cypripedium passerinum*), and the Ram's-head Lady's-slipper (*Cypripediumrietinum*). Of these, the latter three species are quite rare in their occurrence, and only the Yellow Lady's-slipper is relatively frequent. But even

the Yellow Lady's-slipper is hardly abundant anywhere in the province.

The rarity of these lady's-slippers greatly enhances interest in their discovery. A primary reason for publishing this article on the lady's-slippers is to encourage wildflower enthusiasts and nature lovers in the province to be more aware of these orchids and locate new records for them. However, because of the rarity of these orchids, they should not actually be collected. Successful transplanting to local gardens nearly always fails because of the special requirements of the plants. Good photographs are very desirable, especially if in colour. Anyone finding these orchids will perform a valuable service if they record the exact locality and forward this information to us at the Fraser Herbarium, University of Saskatchewan, Saskatoon, or to any other recognized herbarium. If there seems good reason to collect a voucher specimen, a botanist from the herbarium will go and carefully collect what is necessary, prepare and file it properly in order to authenticate the record without endangering the perpetuation of a local colony of these orchids.

The following identification key can be used to determine the different species of lady's-slippers. Such a key is quite simple to use. The user is first confronted with a choice between the number one leads. If the characters of the unknown plant fit the first lead, the plant is identified as the Stemless Lady's-slipper. If, instead, the characters of the unknown plant fit the second of the number one leads, the user goes on to the choice between the

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THE LADY'S-SLIPPER FLOWER

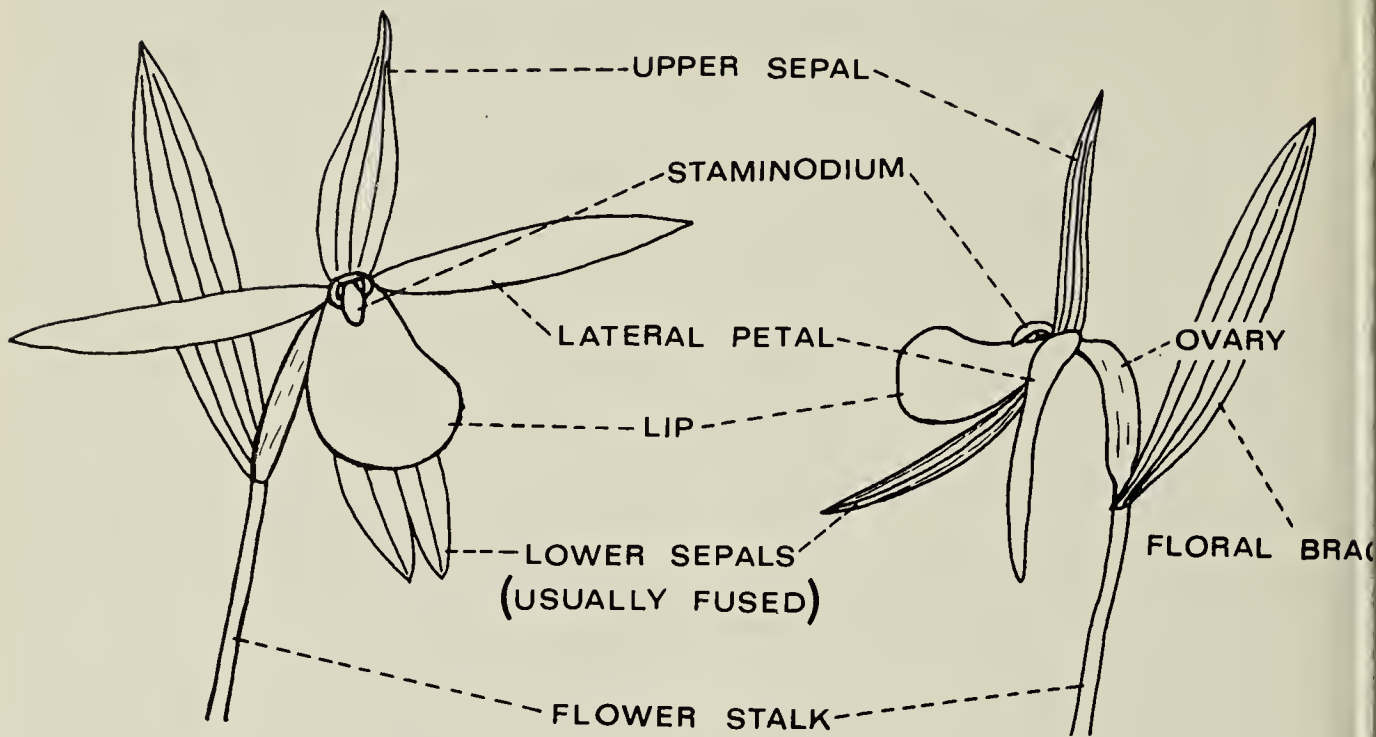


Figure 1. Parts of a lady's-slipper flower

number two leads. If the choice is the first of these leads, the identity of the unknown plant is the Yellow Lady's-slipper. If, instead, the choice is the second of these number two leads, the user goes on to a choice between the number three leads which will give him the species' identification.

The four lady's-slippers of Saskatchewan are illustrated in Figure 2, and their known distributions in Saskatchewan are shown in Figure 3. The

locality records shown in Figure 3 are derived from literature reports and from locality data on specimens filed in the W. P. Fraser Herbarium, University of Saskatchewan, Saskatoon (SASK); the Biology Department Herbarium, University of Saskatchewan, Regina (USAS); the Saskatchewan Museum of Natural History, Regina (DAS); the Department of Agriculture Herbarium at Swift Current (SCS); the Plant Research Institute, Department

IDENTIFICATION KEY TO THE LADY'S-SLIPPER ORCHIDS OF SASKATCHEWAN

1. *Flowering stem* leafless except for two basal leaves and the floral bract; lip pink with red veins, cleft (fissured) down the front. (1) Stemless Lady's-slipper (*C. acaule*)
1. *Flowering stem* with alternating leaves nearly to the top; lip not cleft, but with a rounded opening near the base.
 2. *Lip* yellow (2) Yellow Lady's-slipper (*C. calceolus*)
 2. *Lip* white, pink, or pale purple.
3. *Lip* white or pinkish-white, strongly purplish veined, inflated at the base and prolonged downward at the tip into a blunt, conical spur-like pouch; all three sepals free (3) Ram's-head Lady's-slipper (*C. arietinum*)
3. *Lip* white or pale purple with purple spots, less strongly veined, broadly rounded at the tip; the two lower sepals partly or entirely united (4) Northern Lady's-slipper (*C. passerinum*)

Agriculture, Ottawa (DAO); and the National Museum of Canada, Ottawa (CAN).

(1) **Stemless Lady's-slipper.**

Cypripedium acaule Ait. The flowering stems are 4 to 12 inches to, rarely, 24 inches high, hairy, leafless except for the floral bract and two basal leaves. The two basal leaves are narrowly elliptical to egg-shaped, sparsely hairy, to 8 inches long, pale beneath. The floral bract is lance-shaped, arching forward over the solitary terminal flower. The sepals are 1 to 2 inches long, lance-shaped, yellow-green shaded with purple, with the lower two sepals united and located under the lip. The lateral petals are 1-2 inches long, lance-shaped, greenish-brown to yellowish-green, flat or slightly twisted. The lip is 1 to 3 inches long, gill-like, drooping, with a cleft down the front, pink with red veins.

This species is sometimes also called

the Moccasin Flower or Nerve Root. In Saskatchewan, this is a boreal forest species, apparently found only in the northern half of the province. It is most often found on sandy soil under Jack-pine woods, but it has also been collected under both aspen and spruce woods. In Saskatchewan, the species is rare and thus far is known only from Lake Athabasca, Cree Lake, Lac Ile-a-la-Crosse, 36 miles north of Green Lake, Pelican Narrows, Lac la Ronge, and from 15 to 70 miles north of La Ronge there are specimens from Cycloid Lake, Lynx Lake, MacKay Lake, Otter Rapids and Bervin Lake. The flowers bloom in June and July.

(2) **Yellow Lady's-slipper.**

Cypripedium calceolus L. var. *pubescens* (Willd.) Correll (including *C. parviflorum* Salisb.). Stems 5 to 15 to rarely 25 inches tall, sparsely hairy and glandular, bearing 3 or 4 more or less sheathing leaves up and down the

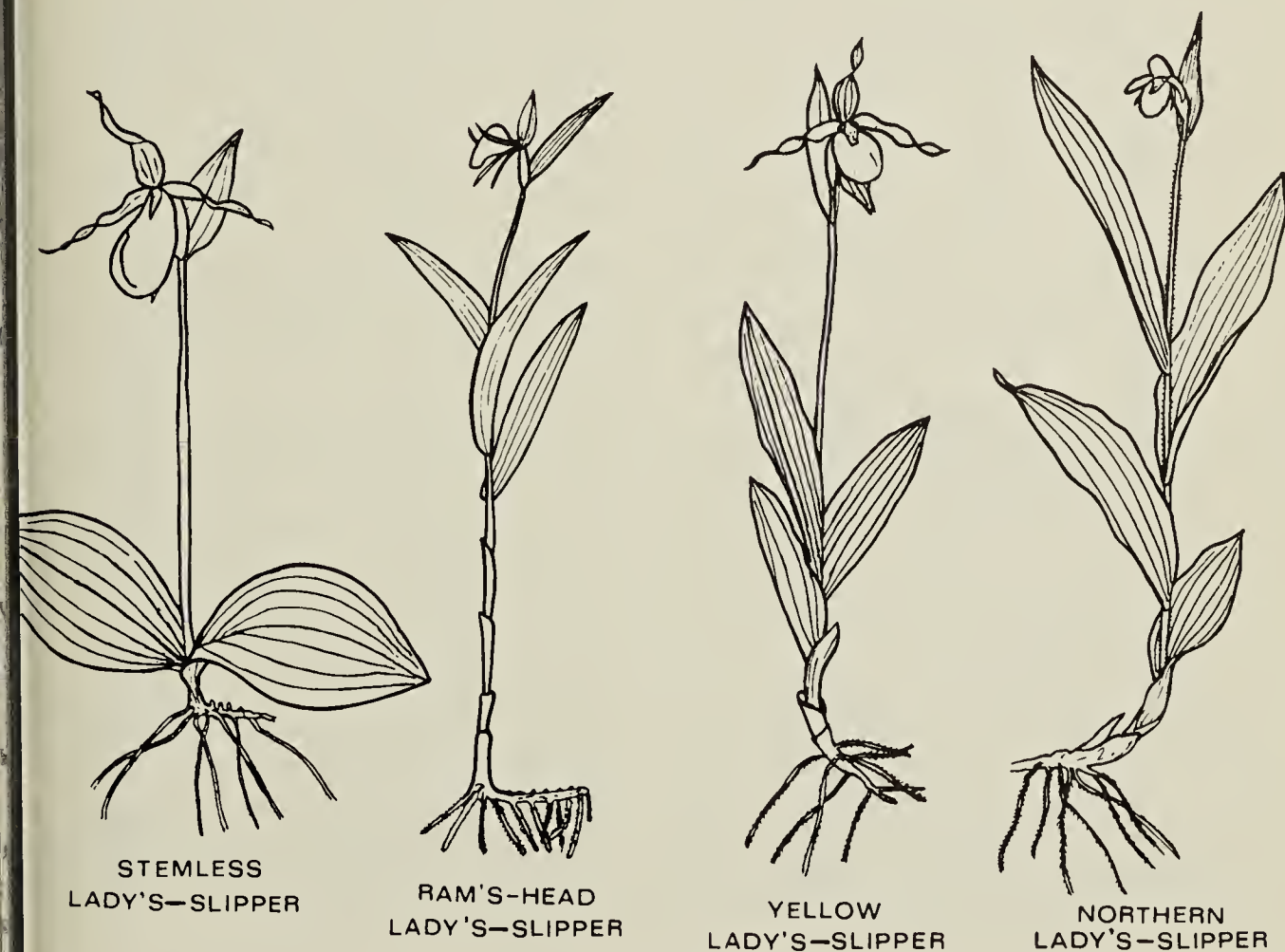


Figure 2. The four Saskatchewan lady's-slippers

stem. The leaves are broadly elliptic, egg-shaped, or lance-shaped, pointed, 2 to 8 inches long and about half as wide, sparsely hairy and usually glandular. The large, terminal flowers are single or, rarely, two, each subtended and usually exceeded by an erect, leaf-like floral bract. The sepals and lateral petals are greenish-yellow to purplish-brown. The upper sepal is broadly lance-shaped, 1 to 3 inches long; the lower sepals are somewhat narrower, united under the lip to sometimes almost distinct. The lateral petals are narrowly lance-shaped, 1 to 3-1/2 inches long, wide-spreading, flat or usually somewhat twisted. The lip is inflated, pouch-shaped, rounded at the top with a rounded opening near the base, 1 to 2-1/2 inches long, yellow and often purple-spotted near the basal opening.

This species is sometimes also called the Golden Slipper, Whip-poor-will Shoe or Moccasin Flower. In Saskatchewan, this species occurs mostly under moist aspen and other woods in the southern half of the province. It has also been collected occasionally on moist low spots in prairie areas. The Yellow Lady's-slipper has apparently not yet been collected in the northern half of the province north of the Lac La Ronge site, nor in southwestern Saskatchewan. The flowers bloom in June and July. It is the most common and abundant lady's-slipper in Saskatchewan. Plants with shorter sepals (under 2 inches), shorter lateral petals (under 2 inches), a smaller lip (under 1-1/4 inch long), and narrower leaves (less than 2-1/2 inches wide) have often been separated as variety *parviflorum* (Salisb.) Fern. or even as a separate species, *C. parviflorum*, but these are now usually regarded as only an ecological form of wetter and colder habitats which is not worth distinguishing taxonomically.

(3) **Ram's-head Lady's-slipper.**
Cypripedium arietinum R. Br. The

stems are slender, 4 to 15 inches tall, thinly hairy, with 2 or 3 sheathing scales below and 3 to 5 leaves above the middle. The leaves are lance-shaped to elliptic, often folded, 2 to 8 inches long, smooth except for some fine marginal hairs. The flowers are solitary and terminal. The sepals and lateral petals are 1/2 to 1 inch long, greenish-brown to somewhat purplish. All three sepals are distinct. The upper sepal is broadly lance-shaped; the lower sepals are narrower and more or less twisted. The lateral petals are narrowly lance-shaped. The lip is whitish, strongly purplish-veined, 1/2 to 3/4 inch long, irregularly triangular, prolonged downward at the tip with a yellowish-green, blunt, conical, spur-like pouch.

In Saskatchewan, the Ram's-head Lady's-slipper was, until very recently, known only from Prince Albert, based upon two undated specimens collected by O. C. Furniss which are filed in the Fraser Herbarium. Recently, W. Cody (in the *Blue Jay* 31 (3): 180-181, September, 1973) reported its rediscovery a few miles northwest of Prince Albert by Mr. and Mrs. Andros Rosent. Even more recently, Mr. Fenton R. Vance (in a letter dated October 23, 1973 to the *Blue Jay*) reported sighting and photographing the species from near the town site of Hudson Bay. I have examined the photograph and it is indeed the Ram's-head Lady's-slipper. Subsequently, a specimen from Hudson Bay was given to us by Bernard de Vries and filed in the Fraser Herbarium. These specimens were found in mid-June on sandy soil under a stand of Jack-pine woods. This is an eastern species which reaches its westernmost range limit in Saskatchewan. Elsewhere, it generally occurs on moist acid soils in coniferous woods and blooms in May or June.

(4) **Northern Lady's-slipper.**
Cypripedium passerinum Richards. The

DISTRIBUTION IN SASKATCHEWAN



STEMLESS
LADY'S-SLIPPER



YELLOW
LADY'S-SLIPPER



RAM'S-HEAD
LADY'S-SLIPPER



NORTHERN
LADY'S-SLIPPER

3

Figure 3. Distribution of lady's-slippers in Saskatchewan

stems are 6 to 14 inches tall, quite densely hairy, and leafy throughout. The leaves are broadly lance- to egg-shaped, 2-1/2 to 8 inches long, 1/2 to 2 inches broad, hairy and glandular. The flowers are relatively small, usually single, but occasionally 2 or 3, exceeded by a large green floral bract. The upper sepal is green, broad, usually rounded or blunt at the tip, about 1/2 inch long. The lower pair of sepals are also green, somewhat shorter, either completely united or almost distinct. The lateral petals are white, broad, blunt or rounded at the tip, about 1/2 inch long. The lip is egg-shaped, 1/2 to 3/4 inch long, white or pale lilac with reddish-purple spots on the inside.

A SECOND SASKATCHEWAN RECORD FOR THE RAM'S-HEAD LADY'S-SLIPPER

by BERNARD de VRIES*

Reference to the rediscovery of the Ram's-head Lady's-slipper, *Cypripedium arietinum* R. Br. (Sub *Criosanthes arietina* (R. Br.) House), in Saskatchewan has been made by Cody². Since publication of that paper, this orchid has also been reported from Hudson Bay in east-central Saskatchewan⁵. This location is particularly noteworthy, as it constitutes a second record for Saskatchewan (Cody, personal communication, 7/1/74).

The present author had the opportunity to visit this location on June 15, 1973, and found several well established populations in a forest type best described as the consociation

This species is sometimes also called the Sparrow-egg Lady's-slipper or Small White Lady's-slipper. Although the species occurs in Saskatchewan from the Cypress Hills in the southwest to Hasbala Lake in the northeastern corner of the province, it is relatively rare. Most collections are from spruce woods and bogs in the southern part of the boreal forest area in the central part of the province. In Saskatchewan the species is known from the Cypress Hills, Lake Waskesiu, MacDowall, Bjorkdale, Prince Albert, Duck Lake, McKague, Candle Lake, Nipawin, Amisk Lake and Hasbala Lake. The plants bloom from late June to early August.

Pinetum banksianii. Recognized within this consociation are limited strata edaphic societies, with such species as Lyre-leaved Rockcress (*Arabis lyrata*), Bluets (*Houstonia longifolia*), Rock Selaginella (*Selaginella rupestris*) and Reindeer-moss (*Cladonia* spp.).

The collection station lies within the southern section of the boreal parkland transition zone of east-central Saskatchewan. For a full description of the Hudson Bay area and regional climate, reference can be made to Breitung, Thomas, and Kendrick and Currie.^{1 4 3}

The Saskatchewan localities are: A few miles northwest of Prince Albert *A. Rosent*, May, 1972; a few miles southwest of Hudson Bay, *B. de Vries* June 15, 1973. No. 195.73. Voucher specimens are in the Vascular Plant Herbarium, Biosystematics Research Institute Research Branch Agriculture Canada, Ottawa (D. MacPhedran, photo, Cody²), the W. P. Fraser Herbarium, University of Saskatchewan, Saskatoon (O. C. Furniss, first authentic report for Saskatchewan, Cody²), and in the Fort Qu'Appelle Herbarium (No. 195.73).

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