

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.

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.

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

Pinetum banksianii. Recognized within this consociation are limited strata of 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).

*Fort Qu'Appelle Herbarium,
Fort Qu'Appelle, Saskatchewan.
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The species ranges through temperate eastern America from the southern New England states south to Massachusetts and New York, west to Michigan, Wisconsin and Minnesota, north to southwestern Quebec, and west to southcentral Manitoba. It occurs in Saskatchewan as disjunct populations.

It is hoped that this rare orchid will not succumb to overzealous collectors or vandalism. Although some efforts are being made to protect the species at Hudson Bay⁵, the author strongly urges that *all* our native orchids be placed on the list of protected native

flora soon before it is *too* late.

¹BREITUNG, A. J. 1947. *Catalogue of the Vascular Plants of Central Eastern Saskatchewan*. Canadian Field Naturalist. 61(3):71-100.

²CODY, W. J. 1973. *Ram's-head Lady's-slipper Rediscovered in Saskatchewan*. Blue Jay. 31(3):180-181.

³KENDREW, W. G. and B. W. CURRIE. 1955. *The Climate of Central Canada*. Queen's Printer, Ottawa.

⁴THOMAS, M. K. 1953. *Climatological Atlas of Canada*. Canada Department of Transport, Ottawa.

⁵VANCE, F. R. 1973. *Ram's-head Lady's-slipper at Hudson Bay, Saskatchewan*. Blue Jay. 31(4):249-250.

THE ROLE OF NATURAL BIOLOGICAL AGENTS IN CONTROLLING A PINE STEM RUST (*CRONARTIUM COMANDRAE*)

by JOHN M. POWELL*

The stem or blister rust fungi are among the most destructive and dangerous diseases of pines. Six species of these rusts are found in Canada, five of which occur in the Prairie Provinces. The best known is the introduced white pine blister rust which attacks the five-needle or white pines. The others are native and occur in the two-needle or hard pine group which includes jackpine (*Pinus banksiana* Lamb.) and lodgepole pine

(*P. contorta* Dougl. var. *latifolia* Engelm.). One of the native rusts is the Comandra blister rust (*Cronartium comandrae* Pk.) which is found across Canada¹ and over much of the United States, and now has been reported infecting 15 species of pines in North America⁶. This rust has been the subject of a 6-year study carried out largely in southwestern Alberta where it occurs on lodgepole pine. One objective of the study was to assess the role of various biological agents, namely the macro- and micro-fauna and micro-flora, on the production of rust spores and whether rust cankers

*Northern Forest Research Centre,
Canadian Forestry Service,
Department of the Environment,
Edmonton, Alberta.