

## Extralimital Sighting of a Polar Bear, *Ursus maritimus*, in Northeast Saskatchewan

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The first documented occurrence of a Polar Bear (*Ursus maritimus*) in northeastern Saskatchewan, 420 km from the western coast of Hudson Bay, is described. The bear was most likely a sub-adult male in fair condition, with respect to body fat. Early break-up of ice on Hudson Bay in the spring of 1999 may have contributed to this significant extralimital sighting.

Key Words: Polar Bear, *Ursus maritimus*, distribution, behaviour, Saskatchewan.

On 12 September 1999, Tom Estes and Ray Woolrich of Bartlesville, Oklahoma, video-documented the occurrence of a Polar Bear, *Ursus maritimus*, while fishing on Burnett Lake (59° 02' N, 102° 18' W), a small, remote lake near the Saskatchewan-Manitoba border. At 14:00, approximately 1.2 km from shore, a Polar Bear swam to within 18-27 m of their boat while Estes videotaped the encounter. The bear was seen earlier at some distance, but was initially mistaken for a gull. The bear was undeterred by noise from the outboard motor and, despite the observers relocating another 1 km down the lake, continued to follow the boat. The pair retreated once again but, before returning to camp, they attempted to lure the bear away from the area by meandering around some nearby bays and islands. The bear was not seen for the remainder of their trip or by subsequent fishing parties. A copy of the videocassette was forwarded to the Canadian Wildlife Service in Edmonton, Alberta, where it was confirmed that the bear was most likely a sub-adult male in fair condition, with respect to body fat (D. Andriashek and N. Lunn, Canadian Wildlife Service, 5320-122 St., Edmonton, Alberta T6H 3S5, personal communication).

To the author's knowledge, this encounter represents the first confirmed sighting of a Polar Bear in Saskatchewan. The straight-line distance from the nearest point on the Hudson Bay coast to Burnett Lake is approximately 420 km through sparse to dense boreal forest and lakes. While inland sightings of Polar Bears 100-150 km from coast, especially within the Hudson Bay Lowland denning area, are common (Derocher and Stirling 1990), similar reports of extralimital sightings in the literature are rare. In 1938, a sub-adult male was shot at the mouth of the Peribonka River, Lac St. Jean, Quebec, 640 km inland from James Bay (Jackson 1939). In the mid-1990s a Polar Bear was reported destroyed at the Tsiigehtchic, North West Territories (Arctic Red River) landfill, 190 km from the mouth of the Mackenzie River, but this could not be independently verified. Packard (1886) speculated that Polar Bears may have historically ranged as far down the eastern coast as Maine.

Sightings such as these are extremely rare, and serious attempts to monitor the movement of Polar Bears have been limited to the past three decades. Traditional knowledge may prove valuable in providing a historical context of the frequency of inland movement, but such information is rarely documented in the scientific literature. It is important, therefore, to record extralimital sightings in order to better understand Polar Bear movements during the ice-free season, especially with reference to the potential effects of longer ice-free periods on Hudson Bay associated with climate change (Stirling et al. 1999). The break-up of ice on Hudson Bay during the spring of 1999 was earlier than normal and this may have influenced the bear's movements. Many bears were forced ashore farther north than normal, resulting in sightings in areas not usually frequented by bears at that time of the year (Cam Elliott, Parks Canada, Box 668, Churchill, Manitoba R0B 0E0). It is possible that this bear may have travelled up one of several river systems (e. g., the Seal or Thlewiaza) before continuing overland by some unknown route to Saskatchewan, but this is not known.

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## *Dryopteris goldiana* × *D. intermedia*, a Natural Fern Hybrid New to Canada

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The rare fern hybrid *Dryopteris goldiana* × *D. intermedia* is reported for the first time from Canada on the basis of a collection from eastern Ontario. The plant occurred in rich deciduous woods in an extensive seepage area at the base of a slope. The immediate vicinity had an unusually high floristic diversity and 25 associated vascular plants are listed. Distinguishing characteristics of the hybrid are outlined.

Key Words: *Dryopteris goldiana* × *D. intermedia*, Goldie's Fern, Evergreen Wood Fern, hybrid, conservation, biodiversity, bioindicator, Canada.

Areas of occurrence of natural hybridization of native species should be preserved as part of a dynamic ecosystem (Whitham and Maschinski 1996). Such areas containing plant hybrids are often "hot spots of ecological and evolutionary activity" (Whitham 1991). Hybrids are important with regard to genetic diversity and the conservation of evolutionary potential, and in some cases they serve as important indicators of areas of high biodiversity (Whitham 1991). They also provide opportunities for research aimed at testing evolutionary and ecological hypotheses. Natural hybridization has played a significant role in the evolution of the fern genus *Dryopteris* (Evans and Wagner 1964). The distribution and frequency of *Dryopteris* hybrids are important in determining relationships between the taxa for classification purposes, and an understanding of hybrids and their characteristics is essential for identification.

During a study of the floristic composition of the Rigaud Headwaters ANSI (Area of Natural and Scientific Interest) in eastern Ontario, a plant was found that had characteristics of both Goldie's Fern, *Dryopteris goldiana* (Hook. ex Goldie) A. Gray, and Evergreen Wood Fern, *Dryopteris intermedia* (Muhlenb. ex Willd.) A. Gray. Because such a hybrid had not previously been found in Canada (Cody and Britton 1989), the Canadian floristic literature provided no means of identification of the plant. Its identity as a hybrid of the two species it resembled was later determined with publications covering areas in the United States and specialized literature on fern hybrids. The identification was confirmed by J. D. Montgomery, a specialist in classification and identification of *Dryopteris* taxa.

### Voucher:

Ontario: Glengarry Co.: Kenyon twp.: 10 km NE of Maxville, approx. 31 G/7 18T 519450 5021750, 2 Oct. 2001, P.M. Catling (DAO).

### Distribution and ecology

*Dryopteris goldiana* occurs throughout a large portion of eastern North America, reaching its northern limit in southeastern Canada where it occurs from New Brunswick west to southern Quebec and southern Ontario (Cody and Britton 1989; Carlson and Wagner 1982). *Dryopteris intermedia* is more widespread in eastern North America and in Canada where it occurs from Newfoundland west to northwestern Ontario (Cody and Britton 1989; Carlson and Wagner 1982). Although a number of hybrids involving each of these two species have been reported from Canada (Cody and Britton 1989), a cross between *D. goldiana* and *D. intermedia* is known only from the United States where there are reports from Michigan, New Jersey, New York, North Carolina, Ohio and Vermont. It is generally considered to be rare (Wherry 1961; Montgomery 1982; Thorne and Thorne 1989). After 10 years of studying *Dryopteris*, Evans and Wagner (1964) noted that they had examined thousands of plants in dozens of localities without finding this cross, which they regarded as "one of the most unusual of the rare hybrid woodferns".

### Habitat

*Dryopteris goldiana* × *D. intermedia* is reported to occur near the bottom of moist limy talus (Thorne and Thorne 1989). At the eastern Ontario location the plant occurred in rich deciduous woods in an extensive seepage area at the base of a slope. The area is within the hilly Glengarry Till Plain and the vegetation in this region has developed over a substrate of sand and gravel. The forest was dominated by Black Maple (*Acer saccharum* Marshall ssp. *nigrum* (Michx. f.) Desmarais – 30%), Sugar Maple (*Acer saccharum* Marshall ssp. *saccharum* – 40%), Bitternut Hickory (*Carya cordiformis* (Wandenh.) K. Koch – 10%), White Ash (*Frax-*