

A NEW ANNOTATED LIST OF MANITOBA FERNS (SPRING, 2016)

Richard J. Staniforth
336 Glenwood Crescent
Winnipeg, MB R2L 1J9
richard_staniforth@yahoo.ca

Most people who have interests in nature have enjoyed the pleasure of seeing ferns in their natural habitats; whether they have been large graceful stands of Ostrich ferns growing in spring-flooded, riverine forests; stately patches of bracken in among fragrant pines; or even the various kinds of rock ferns thriving in the smallest of crevices in granite or limestone outcroppings. Ferns bring a tranquil pleasure to their spectators, which is different to that provided by the bright colours that attract us to many flowering plants. In this article, I hope to update our understanding of ferns in Manitoba with the use of the reliable evidence that herbarium specimens can provide. During the early months of 2016, I examined the fern collections of herbaria at University of Winnipeg (UWPG), University of Manitoba (WIN), The Manitoba Museum (MMMN) and my own temporary collection (RS) but occasionally the research led to herbaria and information sources from elsewhere.

Hopefully, the resulting annotated checklist will be a baseline datum for future studies and will also update the most recent list of Manitoba's plant biota.¹ Horsetails and moonworts are also ferns in the truest meaning of the term, but these have not been included here because they have already been fully reported in previous articles in the *Blue Jay*^{2,3} This article is restricted to the "true" or leptosporangiate ferns. Altogether 1,421 specimens of ferns were examined, their identifications were verified and notes taken regarding their ranges and habitats. There are several common names for most kinds

of ferns, even within the same region. The ones chosen for the checklist are those that are most commonly used, or seem to be the most logical names for those species. Alternative names that have occasionally been selected in important publications involving ferns are given below for clarification.^{4,5}

1. Eastern Lady-fern

Ladyfern⁴ (Fig. 1)
Athyrium filix-femina (Linnaeus) Roth
ex Mertens var. *angustum* (Willdenow)
G. Lawson

Very common. HABITAT: Wet organic soils in deciduous and mixed woodlands, bogs, fens, stream banks and roadside ditches.
RANGE: Southern half of Manitoba, but less commonly west of Red River. A few northern specimens show a minority of characteristics of the Northern Lady-fern, *A. filix-femina* var. *cyclosorum* Ruprecht.

2. American Parsley-fern

American Rockbrake⁴,
American Rock-fern⁵
Cryptogramma acrostichoides R. Brown
Uncommon. HABITAT: Depressions and crevices on granite outcrops. RANGE: From SE to mid-western Manitoba.



3. Bulblet Bladder-fern

Bulblet Fern⁴ (Fig. 2)
Cystopteris bulbifera (Linnaeus)
Bernhardi

Very rare. A single specimen (MMMN 39) was collected from "Eastern Manitoba" by M.W. Hutchison in 1944. No additional information is given on the herbarium label.

4. Brittle Bladder-fern

Fragile Fern⁴, Fragile Bladder-fern⁵
Cystopteris fragilis (Linnaeus)
Bernhardi

Common. HABITAT: Moist organic substrates in shaded crevices and mossy ledges on calcareous cliffs in mixed or coniferous forests. Occasionally found on granite and other rock types, rarely on rotten logs within forests. RANGE: It is found from SE and across the southern half of the province north to Lynn Lake, but also at Churchill where it appears to be disjunct.



FIGURE 1. Manitoba's commonest ferns; Eastern Lady-fern (left); Spinulose Wood-fern (right);

5. Mackay's Bladder-fern

Upland Brittlefern⁴ (Fig. 2)
Cystopteris tenuis (Michaux) Desvaux

Rare. HABITAT: Shady calcareous and granite cliffs in the boreal forest. RANGE: Similar to the Fragile Bladder-fern but scarcer and more southern and eastern. Formerly known as *C. fragilis* var. *mackayi* Lawson but was elevated to species status in 1983.⁶ This is the first report of this taxon from Manitoba; however, specimens at the Manitoba Museum had been casually annotated as "var. *tenuis*" by D. Brunton in 1986.

6. Spinulose Wood-fern

Spinulose Shield-fern^{4,5} (Fig. 1)
Dryopteris carthusiana (Villars)
H.P. Fuchs

Very common. HABITAT: Moist organic soil, and occasionally on rocks, in deciduous, mixed and coniferous forests. RANGE: Throughout the southern half of Manitoba.

7. Crested Wood-fern

Crested Shield-fern^{4,5}
Dryopteris cristata (Linnaeus) A. Gray

Common. HABITAT: Wet organic substrates in bogs, fens and wet scrub and woodlands. RANGE: Southern one-third of Manitoba.



7a. Braun's Hybrid Wood-fern

Dryopteris x uliginosa (A. Braun ex Döll) Kuntze ex Druce = *Dryopteris carthusiana* x *D. cristata*

Very rare. HABITAT: Mixed and coniferous forests in the vicinity of both parent species; specimens are sterile and show characteristics of each. This is the first report of this hybrid for Manitoba.

8. Northern Wood-fern

Spreading Woodfern⁴ (Fig. 2)
Dryopteris expansa (C. Presl) Fraser-Jenkins & Jermy

Very rare. A single specimen was collected from a streamside granite outcrop in the Gunisao Lake area (53° 29'N; 96° 18'W) of mid-eastern Manitoba. This is the first report of this taxon from Manitoba. Although this specimen has all of the characteristic features of the Northern Wood-fern, it has been pointed out that its petiolar bracts do not exhibit the strongly marked central midrib usually found in this species (D. Brunton, pers. comm.).



9. Fragrant Wood-fern

Fragrant fern⁴, Fragrant Shield-fern⁵
Dryopteris fragrans (Linnaeus) Schott

Uncommon. HABITAT: Shady, non-calcareous cliffs on outcrops in the south but on exposed rock ridges northwards. RANGE: SE Manitoba and northwards to the Nunavut border.

10. Common Oak-fern

Northern Oak Fern⁴ (Fig. 1)
Gymnocarpium dryopteris
(Linnaeus) Newman

Very common. HABITAT: On moist, organic soils in mixed and coniferous woodlands or amongst rocks. RANGE: From the Whiteshell Provincial Park in SE MB across Manitoba to Riding Mountain National Park and northwards to the Nunavut border.

11. Nahanni Oak-fern

Gymnocarpium jessoense (Koidzumi)
Koidzumi subsp. *parvulum* Sarvela

Rare. HABITAT: Usually on ledges on limestone or granite outcrops in mixed or coniferous forests. RANGE: Similar to that of Common Oak-fern but much scarcer.

11a. Intermediate Oak-fern

Gymnocarpium x intermedium
Sarvela = *Gymnocarpium jessoense* x *G. dryopteris*

Very rare, but likely commoner than records indicated. Found in proximity to parent species, i.e. rocky boreal woodlands.

12. Limestone Oak-fern

Gymnocarpium robertianum
(Hoffmann) Newman

Very rare. HABITAT: Shady limestone cliffs and rocks, also cedar swamps. RANGE: Collected from four locations in Manitoba: north of Cranberry, 37 km and 50 km N of Grand Rapids and near the North Star Trail, E of Grand Beach Provincial Park. K. Pryer has thoroughly reviewed the occurrence of oak-ferns in Manitoba.⁷

FIGURE 1. Common Oak-fern (left); Ostrich fern (right).

13. Hairy Water Clover

Hairy Water Fern⁴, Hairy Pepperwort⁵, Water Shamrock (Fig. 2)

Marsilea vestita Hooker & Greville

Very rare. A single specimen (WIN 6250) is the only evidence of its occurrence in Manitoba. It may be more frequent but overlooked because it is inconspicuous. It occurs in adjacent parts of Saskatchewan, although not commonly⁵. The herbarium label on the Manitoba specimen indicated that it was collected from "Western Manitoba", but gives no additional information.

14. Ostrich Fern (Fig.1)

Matteuccia struthiopteris (Linnaeus) Todaro var. *pensylvanica* (Willdenow) C.V. Morton

Very common. HABITAT: Wet or seasonally flooded deciduous or mixed woodlands, frequent in river bottomland forests. RANGE: The southern half of Manitoba. A popular garden plant with edible fiddleheads.⁸

15. Sensitive Fern

Onoclea sensibilis Linnaeus

Common. HABITAT: Wet, shrubby, mixed or deciduous forests, swamps and roadside ditches.

RANGE: SE Manitoba. Beaver Creek Provincial Park (51° 22'N; 96° 55'W) is the most northerly and westerly outpost for the entire range of this primarily eastern species.

16. Interrupted Fern

Osmunda claytoniana Linnaeus

Uncommon. HABITAT: Damp locations in deciduous, mixed or coniferous forests. RANGE: SE Manitoba. A specimen collected from near Hamar's Lake within Hecla Provincial Park (51° 11'N; 96° 55'W) is the most western location for this primarily eastern species.

17. Gastony's Cliff-brake

Pellaea gastonyi Windham

Very rare. HABITAT: Dolomite and limestone outcrops and boulders. RANGE: A few colonies are known from the central and northern Interlake region of Manitoba. These were thoroughly documented by C. Friesen and C. Murray in 2015.⁹

18. Smooth Cliff-brake

Pellaea glabella Mettenius ex Kuhn ssp. *glabella*

Very rare. Known from only one location in Manitoba (49° 44'N; 95° 10'W); on the Hunt Lake Hiking Trail in Whiteshell Provincial Park where it has been found growing in moist crevices on a single, shaded, vertical, north-facing cliff of metamorphic rock within the boreal mixed forest.

18a. Western Smooth Cliff-brake

Western Dwarf Cliffbrake⁴
Pellaea glabella Mettenius ex Kuhn ssp. *occidentalis* (E. Nelson) Windham

Rare. HABITAT: Exposed and partially shaded sites on limestone and dolomite cliffs within the southern edge of the boreal forest.

RANGE: Mid-western Manitoba.

19. Northern Beech-fern

Phegopteris connectilis (Michaux) Watt

Very rare. This species has only been collected twice in Manitoba: Kasmere Lake, NW Manitoba (approx. 59° 35'N; 101°10'W) and, secondly, Tod Lake, W-central Manitoba (approx. 56° 34'N; 101° 46'W).

20. Siberian Polypody

Polypodium sibiricum Siplivinsky

Uncommon. HABITAT: Crevices and depressions on moist, moss-covered, shaded granite (occasionally calcareous) outcroppings.

RANGE: SE to NW Manitoba.

21. Common Rock Polypody

Rock Polypody⁴

Polypodium virginianum Linnaeus

Common. HABITAT: Crevices and depressions on moist, moss-covered, shaded granite (occasionally calcareous) outcroppings.

RANGE: SE to NW Manitoba. The Common Rock Polypody is the commoner of the two Polypody species in the southeast the province; however the Manitoba ranges of the two species overlap.



FIGURE 2. From left to right: Two new ferns for Manitoba; Mackay's Bladder-fern; Northern Wood-fern.

22. Eastern Bracken

Bracken Fern⁴

Pteridium aquilinum (Linnaeus) Kuhn
var. *latiusculum* (Desvaux) Underwood
ex A. Heller

Common. HABITAT: Well-drained
and dry soils in mixed and coniferous
forests, or adjacent roadsides.

RANGE: SE Manitoba with disjunct
colonies in Riding Mountain National
Park¹⁰ and Kettle Hills.

23. Marsh Fern

Eastern Marsh Fern⁴

Thelypteris palustris Schott var.
pubescens (Lawson) Fernald

Uncommon. HABITAT: Fens, bogs,
roadside ditches and open, wet, grassy
areas in boreal woodlands. RANGE: SE
Manitoba with a disjunct population
near Grand Rapids (53° 20'N; 98° 20'
W).

24. Alpine Woodsia

Northern Woodsia⁴

Woodsia alpina (Bolton) S.F.Gray

Very rare. HABITAT: moist, shaded,
granite or metamorphic outcroppings
within the boreal forest^{11,12}.

RANGE: Collected from four sites in
Manitoba: Tod Lake, Snow Lake, Lake
Waskaiowaka and Hunt Lake in the
Whiteshell Provincial Park. W. Cody
and D. Britton have reviewed the
status of *Woodsia* in Manitoba.^{11,12}



25. Smooth Woodsia

Woodsia glabella R. Brown ex
Richardson

Rare. HABITAT: Shaded crevices in
limestone and dolomite cliffs.

RANGE: Northern Interlake region,
westward to the Saskatchewan border.

26. Rusty Woodsia

Woodsia ilvensis (Linnaeus) R. Brown

Very common. HABITAT: Exposed
crevices and depressions on Pre-
Cambrian granite outcroppings in
the boreal forests. RANGE: From
Whiteshell Prov. Park in SE Manitoba
to the Nunavut border.¹²

27. Oregon Woodsia

Woodsia oregana D.C. Eaton ssp.
oregana

Very rare. Collected from two locations
in Manitoba; on a schist rock outcrop
in Baker's Narrows Provincial Park
(54° 40'N; 101° 39'W), and secondly
just a few kilometres closer to Flin
Flon. Manitoba specimens had been
previously mistakenly identified as the
pubescent subspecies *cathcartiana*
(B.L. Robinson) Windham.



27a. Hybrid Woodsia

Woodsia x abbeae Butters = *W.*
oregana x *W. ilvensis*

Specimens have been collected from
among a colony of Oregon Woodsia
near Baker's Narrows Provincial Park
and are the mistaken basis of a record
of *W. scopulina* for Manitoba. This
is the first report of this taxon for
Manitoba.

Synopsis of fern taxa in Manitoba

In Manitoba, there are 27 species,
one additional subspecies and three
hybrids. Perhaps not surprisingly,
the diversity of ferns that occur in
Manitoba is not very different to
that of Saskatchewan⁵. However, the
fern flora of Saskatchewan includes
several species that have ranges that
do not extend eastwards as far as
Manitoba: Rocky Mountain Woodsia,
Sitka Lady-fern, Mountain Bladder-
fern and the Male Fern. Similarly,
Manitoba has several species that are
primarily eastern and do not reach as
far west as Saskatchewan: Interrupted
Fern, Sensitive Fern, Northern Wood-
fern, Mackay's Bladder-fern, Bulblet
Bladder-fern, Eastern Bracken,
Limestone Oak-fern and Smooth Cliff-
brake. Needless to say, both provinces
harbour species of ferns that reach
their north-eastern or north-western
North American range limits.

The commonest of Manitoba Ferns (Fig. 1)

The sequence of species for
which the most specimens had been
collected was: Spinulose Wood-fern,
Eastern Lady-fern, Common Oak-fern,
Ostrich Fern and Rusty Woodsia. These
are all common species; however, it
must be borne in mind that collection
biases may enter this and into the next
calculation.

FIGURE 2. Two old, unique and mysterious Manitoba fern specimens; Bulblet Bladder-fern, Hairy water-clover.

The rarest of Manitoba Ferns

Eight Manitoba species of ferns were particularly noteworthy for their scarcity in herbarium collections. Hairy Water-clover, Northern Wood-fern and Bulblet Bladder-fern were represented by single specimens. Other rare ferns are Oregon Woodsia and Smooth Cliff-brake each of which had been found from single locations; Baker's Narrows Provincial Park and on the Hunt Lake Trail, Whiteshell Provincial Park, respectively. Other very rare or much localised fern species are Northern Beech-fern, Gastony's Cliff-brake, Limestone Oak-fern and Alpine Woodsia. The last species was found close to the site which bears the single small colony of Smooth Cliff-brake and probably should receive protection.

Two intriguing fern mysteries (Fig. 2)

Bulblet Bladder-fern and the Hairy Water-clover are each represented in Manitoba's flora by single specimens that were collected a long time ago and have not been seen in the province since. Incomplete information on the herbarium labels has added to their mystery and intrigue.

The Bulblet Bladder-fern is a species of the eastern United States as far north and west as Minnesota and northern Ontario. A specimen was collected by M.W. Hutchison on July 22, 1944 from "Eastern Manitoba" and is now in the Herbarium of the Manitoba Museum (MMMN 39). Its identification has been verified by Scoggan (1950), Boivin (1964) and Cody (1984). Whereas, there has been no doubt about its identification, its

origin has remained a mystery. Boivin has speculated that this specimen had been collected from elsewhere in its range with the purpose of providing a sample to represent a species whose distribution was once mistakenly considered to include "Eastern Manitoba." On the other hand, a recent publication of ferns by Chadde does indicate that the species is widespread in northern Minnesota including Roseau County which is adjacent to the Manitoba border.¹³ Scoggan has succinctly summarised the present status of Bulblet Bladder-fern in Manitoba with his statement: "Further collections of this species are desirable to remove all doubt as to its occurrence in the province."¹⁴

The Hairy Water-clover is a strange fern that inhabits shallow water or water-edge muck. Its two kinds of leaves are "un-fernlike" in shape. The aerial or floating ones resemble the leaves of a four-leaved clover and the submerged leaves are fertile and resemble small nutlets. This strange fern is an uncommon species in the American Midwest and the three western Canadian provinces. In Saskatchewan, it is widely but uncommonly distributed across the southern part of the province⁵. There is a specimen in the herbarium of the University of Manitoba that is labelled "Western Manitoba" (WIN 6250) but the exact location and date of collection, and the collector's name are not provided on the herbarium label. With reference to the occurrence of Hairy water-clover in Manitoba, Cody has made the statement: "The species should be searched for in Western Manitoba".¹²

Special fern places

Manitoba fern specimens had been collected from a variety of ecosystems: moist woodlands, marshes, roadsides, limestone escarpments and granite outcroppings. There were more species in the southeast quadrant of the province and the least numbers

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in the northwest quadrant. This is unlikely to be a phenomenon that is entirely related to collection bias because those ecosystems with few species outside of the southeast corner were those which were prone to forest fires, dry sandy substrates in pine forests or in areas of intense agriculture. Limestone escarpments harbour interesting fern species such as the Smooth and Gastony's Cliff-brakes, Smooth Woodsia and the Limestone Oak-fern, and yet these habitats are vulnerable to quarrying which may put their inhabitants at risk. Two specific non-limestone sites are also particularly noteworthy, firstly Baker's Lake Provincial Park in which Manitoba's only colony of Oregon Woodsia is to be found, and secondly the Hunt Lake Trail in the Whiteshell Provincial Park where cliffs support the only Manitoba colony of the Smooth Cliff-brake (*Pellaea glabella glabella*), as well as a few plants of the rare Alpine Woodsia.

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Bird Studies Canada is currently seeking volunteers to serve as Regional Coordinators (RCs) to help manage coverage of the Saskatchewan Breeding Bird Atlas. The Atlas is scheduled to run from 2017 to 2021 and aims to document the distribution and abundance of breeding birds across the province. Regional Coordinators play a vital role in the success of an Atlas: they act as the main contact and information source for participants within their region; and they work with Atlas staff to ensure that regional coverage targets and data quality standards are met. People interested in serving as RCs should have solid bird identification skills and knowledge of the breeding birds likely to be found in their region. Regions for the southern half of the province are currently based on birding districts; however, these will be modified based on the locations of our RCs and from input at our Fall 2016 Regional Coordinator meeting. We will be hosting the Regional Coordinator meeting at a scenic location over the weekend of October 29-30, 2016. It will be a great opportunity to learn more about the project, meet the Atlas staff and your fellow RCs, and to enjoy some fall birdwatching. If you are interested in making this significant contribution to the Saskatchewan Breeding Bird Atlas by serving as a Regional Coordinator and would like more information, please contact Bird Studies Canada at skatlas@birdscanada.org or call us at 306-249-2894.