

2005 ISSSSP Project
Verifying Identifications of *Botrychiums* on the Colville National Forest Report

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In 2005 the ISSSSP funded the Colville National Forest to revisit and voucher 50 Element Occurrences (EOs) of sensitive *Botrychium* species that hadn't been vouchered or revisited for 10 years. The product deliverables include:

1. Validate identifications of 50 sightings lacking vouchers, which were last visited over 10 years ago.
2. Update sighting forms for 50 element occurrence.
3. Update sensitive plant GIS layer for 50 element occurrences.
4. Update sensitive plant database for 50 element occurrences.
5. Develop status report, if the project overlaps fiscal years.

These are the target species and their status:

Species	FWS	Heritage Global	State Rank	WA Status
Upswept moonwort (<i>Botrychium ascendens</i>)	SoC	G3	S2	S
Crenulate moonwort (<i>Botrychium crenulatum</i>)	SoC	G3	S3	S
Western moonwort (<i>Botrychium hesperium</i>)		G3	S1	S
Skinny moonwort (<i>Botrychium lineare</i>)	SoC	G1G2	S1	S
Two-spiked moonwort (<i>Botrychium paradoxum</i>)	SoC	G2	S1	S
Stalked moonwort (<i>Botrychium pedunculosum</i>)	SoC	G3	S1	S

In summary this is what we found:

What We Found	Out of 49 EOs Evaluated
Target species found. Identification confirmed.	15
Target species not found Change identification to species found in 2005.	10
Target species not found. Voucher found. Change identification.	2
Target species not found. Other <i>Botrychium</i> species were found. Revisit again.	4
No <i>Botrychiums</i> were found. Revisit again.	8
Existing vouchers found. Target species identification confirmed.	9
Did not get to site; road problems. Try again.	1

The results by EO are shown in Table 1. The voucher numbers in Table 1 are not to be used as population counts. They are number of vouchers collected only. Since some of the sites of the EOs are quite large, population counts were not taken. We were able to confirm identifications for 36 of the 49 EOs. Several *Botrychium* species can occur at a site. For the unconfirmed EOs we recommend revisiting once more to collect vouchers to confirm identifications. The project included at least 50 miles of streams and road sides. A bonus was the discovery of a new EO for *B. pedunculosum*. Updated sighting forms were sent to the Washington Natural Heritage Program. The Forest sensitive plant database and GIS layer were updated.

Our goal is to voucher all sensitive *Botrychium* EOs on the Colville National Forest with photocopies of vouchers attached to sighting forms. Table 2 shows work left to do in confirming identifications. Of the 130 sensitive *Botrychium* EOs on the Colville National Forest, we have found vouchers for 71. This leaves 59 sites unvouchered. For 2006 we requested funding to revisit another 40 sites. Confirmation of identifications is basic to the management of rare species.

For 2007 we plan to request funding to finish this project by revisiting the remaining EOs. Although we planned to voucher 50 EOs this year, we only collected or found vouchers for 36 EOs. Part of the problem was planning to revisit three sites per day. We found that two sites a day is realistic. There are still 22 EOs from this year that remain unvouchered. In 2007 there may be 40 unvouchered EOs. In which case, we may request about \$5000 for the work.

Table1. Results of 2005 revisits by category (number of Element Occurrences in category/total)

Target Species	Visit Date-- # of Target Plants	# of Plants Vouchered in 2005	Location
Target species found and identification confirmed. (15/49)			
B. crenulatum/EO 013	7/26/05--5 8/24/99--10 8/25/94--8 9/15/92--13	3 B. crenulatum	15 Rd SW Elbow Lk, D2
B. crenulatum/EO 018	7/15/05--8 7/13/92--6	2 B. crenulatum	Gravy Planning Area, D2
B. crenulatum/EO 022	8/4/05--5 8/2/92--100	2 B. crenulatum 30 B. minganense	Catherine Cr, D4
B. crenulatum/EO 027	8/24/05 7/18/92--8 8/19/91--52	1 B. crenulatum 4 B. minganense	SE Trib Independent Cr, D2
B. crenulatum/EO 028	7/18/05 9/13/95--0 7/9/91--4	1 B. crenulatum 2 B. minganense	Upper Lane Cr, D2
B. crenulatum/EO 044	8/2/05 7/10/95--12	5 B. crenulatum	Sandwich Cr, D3
B. crenulatum/EO 047	7/26/05--12 6/9/94--4 7/1/93--8	3 B. crenulatum	Iron Horse, D2
B. crenulatum/EO 061	7/18/05--39 8/17/95--30 8/15/95--53	3 B. crenulatum	Trib Bridge Cr, D2
B. crenulatum/EO 064	8/3/05 8/8/95--56	1 B. crenulatum 3 B. minganense	Jasper-297 Rd Seep, D2
B. crenulatum/EO 066	8/8/05 8/24/95--18	5 B. crenulatum	Deer-275 Rd Sprg, D2
B. crenulatum/EO 081	7/20/05--8 7/1/96--7	2 B. crenulatum 1 B. minganense 1 B. montanum	W 077 Rd Homestead Cr, D2
B. crenulatum/EO 088	8/8/05--5 9/25/97--6	2 B. crenulatum	Upper Kerry Cr, D2
B. crenulatum/EO 096	7/13/05--24 7/20/98--27	5 B. crenulatum	Little Smackout Cr #1, D1
B. crenulatum/EO 100	8/25/05 6/10/98--339	1 B. crenulatum	Upper Taylor Cr
B. pedunculatum/EO 009	7/6/05--17 6/27/95--9	4 B. pedunculatum	630 Rd Homestead Mdw, D2

Target Species	Visit Date-- # of Target Plants	# of Plants Vouchered in 2005	Location
Target species not found. Change identification to species found in 2005. (10/49)			
Target species B. ascendens/EO 004 B. crenulatum/EO 009 Change to B. minganense	8/16/05 8/26/91--5 8/26/91--16	1 B. minganense 5 B. montanum	Upper Jenny Cr, D2
Target species B. ascendens/EO 014 Change to B. crenulatum	8/17/05 7/27/95--30 6/24/93--16	1 B. crenulatum 4 B. minganense 1 B. montanum 1 B. pedunculosum	Power Lk Rd, D3
Target species B. ascendens/EO 001 Change to B. pedunculosum	6/21/05 6/15/95--2 6/20/94--1	2 B. pedunculosum	Bestrom Mdws, D1
Target species B. ascendens/FO 003 Change to B. minganense	8/3/05 8/21/91--2	3 B. minganense	Midfk Lil Boulder, D2
Target species B. crenulatum/EO 016 Change to B. minganense	7/15/05 7/20/92--7	4 B. minganense	Gravy Planning Area, D2
Target species B. crenulatum/EO 019 Change to B. minganense	7/19/05 7/12/95--38 7/12/92--60	12 B. minganense	Nancy Planning Area
Target species B. crenulatum/EO 029 Change to B. minganense	7/18/05 8/13/91--1 8/26/92--0	1 B. minganense 2 B. montanum	Bridge Planning, D2
Target species B. crenulatum/EO 051 Change to B. minganense	7/14/05 7/28/98--1 6/19/97--4 7/18/94--7	2 B. minganense	Rocky Cr Trib #1, D1
Target species B. crenulatum/EO 057 Change to B. minganense	6/23/05 6/22/95--1	1 B. minganense	S/SE Trib Kolle Cr, D1

Target Species	Visit Date-- # of Target Plants	# of Plants Vouchered in 2005	Location
Target species not found. Voucher found. Change identification. (2/49)			
Target species B. ascendens/EO 022 Change to B. minganense	8/24/05 7/18/95		SE Trib Independent Cr, D2
Target species B. crenulatum/EO 031 Change to B. minganense	8/10/05 8/13/91--2	11 B. minganense	Deer TS, D2
Target species not found. Other <i>Botrychium</i> species were found. Revisit once more. (4/49)			
B. crenulatum/EO 026	7/26/05 8/4/92--28 9/9/91--26	5 B. minganense	Ram Planning Area, D2
B. crenulatum/EO 050	7/11/05 6/2/94--4 7/28/94--5	2 B. minganense	Canyon Cr, D2
B. crenulatum/EO 071	7/14/05 7/3/96--8	1 B. minganense 2 B. montanum	N Fk Deer Cr, D1
B. crenulatum/EO 082	7/19/05 7/30/96--200	8 B. montanum	Hoodoo Cr Upstrm 366 Rd, D2
No <i>Botrychiums</i> were found. Revisit once more. (8/49)			
B. ascendens/EO 005	7/15/05 7/13/92--2		Gravy Planning Area, D2
B. crenulatum/EO 008	7/2/05 5/28/92--2		N end 705 Rd, D2
B. crenulatum/EO 010	8/1/05 8/10/95--43 8/25/92--21		Manley Cr, D2
B. crenulatum/EO 017	7/21/05 7/10/95--0 6/9/92--0 7/10/91--6		Gatorson TS, D2
B. crenulatum/EO 059	7/18/05 7/31/95--1		NW Trib Leslie Cr, D1
B. crenulatum/EO 067	7/26/05 5/21/96--25		N end Pepoon Lk-925 Rd, D2
B. crenulatum/EO 079	6/28/05 7/30/96--3		Paradise Valley, D1
B. crenulatum/EO 083	7/20/05 7/3/96--1		160/180 Rd Jct, D2

Existing vouchers found. Target species identification confirmed. (9/49)

B. crenulatum/EO 014	7/29/93--13 7/9/92--48 9/3/91--3		Ram/Pencil Planning Area, D2
B. crenulatum/EO 021	7/27/95--0 7/23/92--50		Three Way, D3
B. crenulatum/EO 080	7/20/05 9/17/96--14		Matson Ck-705 Rd, D2
B. crenulatum/EO 032	7/13/94--7 6/18/91--500		Thompson Planning, D2
B. crenulatum/EO 039	8/14/95--14 7/17/92--0 7/25/91--1		Upr Midfk Boulder Cr, D2
B. crenulatum/EO 060	7/12/05 7/19/95--3		Little Vulcan Mtn, D4
B. crenulatum/EO 084	7/19/05 6/10/96--13 7/24/97--42	1 B. minganense 1 B. montanum	Midpt Merkel Canyon, D2
B. hesperium/ FO 002	7/6/05 7/1/98--114 6/23/97--87 6/29/95--76		Old Rose ranch Plots, D2
B. paradoxum/EO 011	8/17/05 7/27/95--40 7/6/93--18		Trib S Fk Tacoma Cr, D3
Did not get to site; road problems. (1/49)			
B. pedunculosum/FO#002	9/14/94--1		Trib. to Independent Cr, 370Rd.
New sighting.			
B. pedunculosum/ FO 018	8/17/05	1 B. pedunculosum	Power Lk Rd, D3

Table 2. Summary of Vouchered *Botrychium* Element Occurrences on the Colville National Forest, 22 November 2005.

	<i>B. ascendens</i>	<i>B. crenulatum</i>	<i>B. hesperium</i>	<i>B. lineare</i>	<i>B. paradoxum</i>	<i>B. pedunculosum</i>	Total
Total for the Forest							
# of EOs Vouchered	1	29	14	1	7	19	71
# of EOs	6	75	14	1	10	24	130
Colville District							
# of EOs Vouchered	1	7	10		4	9	
# of EOs	2	15	10		5	13	
Kettle Falls District							
# of EOs Vouchered		25	2	1	2	5	
# of EOs	3	50	2	1	4	5	
Newport District							
# of EOs Vouchered		3			1	2	
# of EOs	1	5			1	2	
Republic District							
# of EOs Vouchered		3				1	
# of EOs		3				1	
Sullivan Lake District							
# of EOs Vouchered		1	2			2	
# of EOs		2	2			3	