

Final Report for the 2007 Revisit of 17 Sites of Two ISSSSP First Priority Species: *Cypripedium parviflorum* and *Sanicula marilandica*

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Abstract

Revisits were completed to three element occurrences (EOs) in six subpopulations of *Cypripedium parviflorum* (G5 S2) on the western portion of the Colville National Forest. Of these subpopulations, two have decreased in numbers of plants, three appear stable, and one has increased. Recommended actions are suggested for two of the EOs. One new subpopulation was found. Similarly, 15 EOs in 38 subpopulations of *Sanicula marilandica* (G5 S2) across the Colville National Forest were revisited and two new subpopulations were documented. We found that 12 subpopulations have decreased in numbers of plants, 17 appear stable, and seven have increased. Recommended actions are identified for eight of the EOs.

Introduction

Cypripedium parviflorum, ranked G5 S2, and *Sanicula marilandica*, ranked G5 S2, are included on the Region 6 list of “ISSSSP First Priority Information and Conservation Gaps.” Table 1 below shows that three of the four sites for *Cypripedium parviflorum* have not been revisited since 2000, as well as 12 of the 21 sites for *Sanicula marilandica*. These sites are in active cattle allotments. This project contributed toward filling a conservation gap, including updating information regarding abundance, population trends, and threats.

Table 1. Years and Numbers of Previous Visits.

Taxa	Year Last Visited and Number of Sites Visited										
	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
<i>Cypripedium parviflorum</i>			1		1		1			1	
<i>Sanicula marilandica</i>	1	3	1	2	5			1	1		7

Project Objectives

1. Revisit four sites of *Cypripedium parviflorum*.
2. Revisit 21 sites of *Sanicula marilandica*.
3. Update sighting forms, GIS layer, and NRIS database.

Study Area

The project occurred across the Colville National Forest.

Methods

Field revisits were conducted to all proposed sites in 2007 by two to three Forest Service employees in 14 days. Work to update sighting forms, GIS layer, and Forest database, as well as, improve written directions to EOs, flag sites, and record GPS locations, for the proposed EOs is complete. All information included in this report was taken from sighting forms.

Results, Discussion, and Recommendations

Cypripedium parviflorum

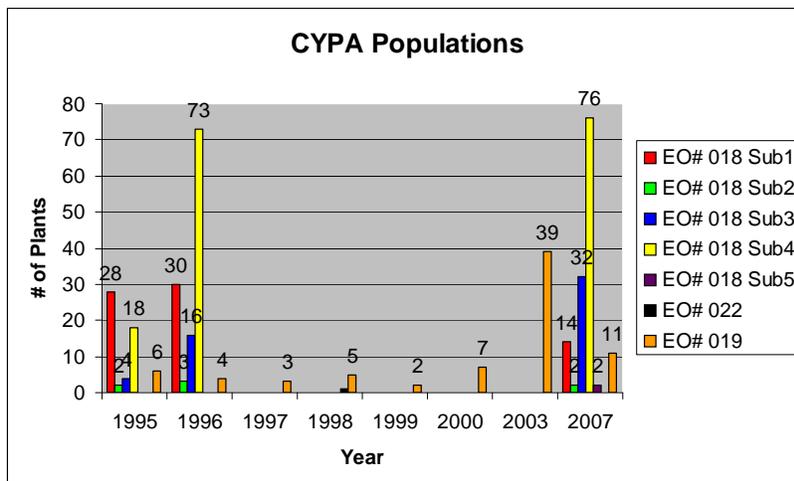
Since one of the four element occurrences (EOs) was a subpopulation of an existing EO, we combined it, thus three EOs of seven subpopulations covering an area of four acres were revisited. Table 2 summarizes the 2007 population counts, area sizes, and identifies recommended actions. One new subpopulation was found in the course of the project. All three EOs include plants with yellow pouches (*C. parviflorum*), cream-colored pouches (*C. x columbianum*), and white pouches (*C. montanum*) (Appendix A).

We compared subpopulation counts in Appendix B, also shown in Figure 1, to determine if the numbers of individuals have increased, are stable or have decreased since a site was discovered. For the six subpopulations revisited in 2007, two have decreased in numbers of plants, three appear stable, and one has increased. To assess changes in area size for a subpopulation, we compared the 2007 area with that of previous years to determine if the 2007 area size increased the known area of a site, was the same, or decreased. An evaluation of subpopulation counts, area sizes, threats, and comments from sighting forms indicated that follow-up actions were warranted for two of the EOs.

Table 2. Summary of Sightings Information from *Cypripedium calceolus* var. *parviflorum* 2007 Revisits. Note: EO# = Element Occurrence Number and FO# = Forest Occurrence Number.

EO# or FO#	Total 2007 Population Count / # of Subpopulations	Total 2007 Area (ft. ²)	Recommended Actions
EO# 018	82 / 5	89,400	Subpop. #1: Creek washed out and gully is enlarging. Address this in current Kettle Face Project. Pile slash debris at skid road near junction of Renner lake Road and other locations to prevent access to creek.
EO#019	11 / 1	79,200	
EO# 022	0 / 1	0	Revisit in June 2007.

Figure 1. Number of Plants for Each Subpopulation for All Revisits.



Sanicula marilandica

We combined six of the 21 element occurrences proposed for revisits, as we identified them as subpopulations of existing EOs. Table 3 summarizes the 2007 population counts and area sizes for the 15 EOs, totaling 59 acres. The table includes recommended actions for eight of the EOs.

Thirty-eight subpopulations comprise the 15 EOs and are shown on Appendix C. Two new subpopulations were found. Upon comparing the number of individuals in a subpopulation over the years, we found that 12 subpopulations have decreased in numbers of plants, 17 appear stable, and seven have increased. Several factors could influence changes in subpopulation numbers. Besides ground disturbance and hydrologic changes, dense vegetation (Appendix D) at a site makes it difficult to identify individuals, thus plants may be overlooked.

To assess changes in area size for a subpopulation, we compared the 2007 area with that of previous years to determine if the 2007 area size increased the known area of a site, was the same, or decreased. Along with subpopulation counts and area sizes, we evaluated threats and comments from sighting forms to decide if follow-up actions were warranted for subpopulations with apparent decreased counts.

Acknowledgements

We would like to thank April Barreca and Jake Wilson for their enthusiastic contributions in the field and the office. This project was accomplished through ISSSSP funding.

Table 3. Summary of Sightings Information from *Sanicula marilandica* 2007 Revisits. Note: EO# = Element Occurrence Number and FO# = Forest Occurrence Number.

EO# or FO#	Total 2007 Population Count / # of Subpopulations	Total 2007 Area of Count (ft. ²)	Recommended Actions
EO# 005	131 / 2	6800	
EO# 006	964 / 5	255,225	Subpop. #2: Remote site. Evaluate options to keep out cattle.
EO# 011	1290 / 3	168,000	
EO# 015	1919 / 1	88,128	
EO# 016	4 / 1	60	
FO# 017	115 / 3	800	
EO# 020	372 / 3	17,225	Subpop. #1: Would be hard to keep cattle out of site. Subpop. #2: Revisit.
EO# 021	50 / 1	500	Pile slash at edge of forest and along road.
EO# 022	4004 / 9	1,393,525	Subpop. #5 & 8: Revisit. How to keep cattle out?
EO# 023	1275 / 4	545,190	Subpop. #1: Creek washed out and gully is enlarging. Address this in current Kettle Face Project. Pile slash debris at skid road near junction of Renner lake Road and other locations to prevent access to creek. Subpop. #4: If the Sanders' waterline needs repair, monitor activity. Subpop. #7: Light cattle use; no 2007 revisit. Revisit in 2008.
EO# 027	486 / 2	241,225	Subpop. #1: Creek is degraded by cattle trampling. Address creek degradation in current Summit Pierre Project. Subpop. #2: Cattle in area. Pile slash to exclude them.
EO# 033	217 / 1	2500	Small trees above the <i>Sanicula</i> were cut. Check to see why.
EO# 034	438 / 1	52,800	
EO# 035	1 / 3	4	Subpops. #1 & 2: Sites confusingly mapped in 1997. Request 1997 reporter to correct map. Revisit.
EO# 040	101 / 1	1000	

Appendix A. Photos of *Cypripedium parviflorum*.

Cypripedium parviflorum near Renner Lake, EO#018, June 4, 2007.



Cypripedium parviflorum and *C. montanum* at Long Lake, (EO#019), June 5, 2007.



Appendix B. Sighting Information from *Cypripedium parviflorum* 2007 Revisits.

Note: EO# = Element Occurrence Number and FO# = Forest Occurrence Number.

EO#	Sub-population #	Revisit Date	# of Yellow	# of Cream	# of White	Not Blooming	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend / Survey Area	Threats or Comments	Recommended Actions
018	1	6-4-2007	14	47	76		75 x 250	18,750	Decrease/ Increase	Creek washed out and gully is enlarging.	Address this in Kettle Face Project. Pile slash debris at skid road near junction of Renner lake Road and other locations to prevent access to creek.
		6-24-1996	30	67	71	201		3750			
		6-15,16,19-1995	28		Didn't count	Didn't count	30 x 75	2250			
	2	6-4-2007	2	2			5 x 5	25	Stable/ Same		
		6-24-1996	3					25			
		6-15,16,19-1995	2			1	5 x 5	25		Cows	Pile slash to prevent cattle access.
	3	6-4-2007	32	1	27		20 x 30	600	Increase/ Same		
		6-24-1996	16					600			
		6-26-1995	4			Didn't count	20 x 30	600			

Appendix D. Sighting Information from *Sanicula marilandica* 2007 Revisits. Note: EO# = Element Occurrence Number and FO# = Forest Occurrence Number.

EO# or FO#	Sub- popula- -tion #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Recommended Actions
EO# 005	1	6-7-2007	13	40 x 120	4800	Stable/ Increase	None. Site well flagged.	
		7-27-2006	0				No flagging found or plants.	
		7-17-1992	10		50			
		8-22-1995	0					
		8-30-1980	No count					
	2	6-7-2007	101	20 x 100	2000	Stable/ Decrease	None	
		8-22-1995	0					
		7-17-1992	130	40 x 120	4800			
EO# 006	1	6-20-2007	459	60 x 600	36,000	Stable/Same	None	
		7-21-2004	52					
		1999	78	1 x 1m	20		No cattle disturbance, but grazing evidence nearby. Creek flow normal.	
		9-15-1998	76	1 x 1m	20		No cattle disturbance, but grazing evidence nearby. Creek flow normal.	
		9-16-1997	82	1 x 1m	20		No cattle disturbance. Creek flowing.	
		8-20-1996	57	1 x 1m	20		No cattle disturbance. Creek flowing.	

EO# or FO#	Sub- popula- tion #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 006	1	8-30-1995	32	1 x 1m	20		Heavy cattle disturbance in plot #1, but not in #2. Creek almost dry.	
		8-24,26-1994	46	1 x 1m	20		Light cattle trampling and foraging in both plots.	
		9-24-1991	328	60 x 600	36,000			
		8-26-1980	18					
	2	6-20-2007	36	40 x 60	2400	<u>Decrease/</u> Same	Area is heavily impacted by trampling from livestock.	Remote site. Evaluate options to keep out cattle.
		7-21-2004	78					
		8-5-1992	194	40 x 60	2400			
	3	6-20-2007	261	100 x 2148	214,800	Stable/ Increase	Cattle or evidence were not seen.	
		6-17-1996	215		54,000			
		6-14-1995	12				Slash piled to prevent cattle access from creek.	
		8-24-1994	21				Impacted severely by cattle along creek.	
		6-14-1991	23	20 x 550	11,000		Lower part of stream near road impacted by cattle	
	4	6-20-2007	181	20 x 100	2000	Stable/ Decrease	None	
		6-17-1996	167		90,000			
	5	6-20-2007	27	5 x 5	25	Stable/Same	None. In Summit Pierre Project Area	
		9-24-1991	5	5 x 5	25		Heavily grazed by cattle.	

EO# or FO#	Sub- popula- tion #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 011	1	6-27-2007	47	25 x 1200	30,000	Stable/Same	Streambed is dry for half of the area surveyed.	
		9-3,4-1991	54	25 x 1200	30,000			
	2	6-27-2007	1000	50 x 2000	100,000	Stable/Same	None. Discrepancy in count might be in how counted.	
		9-3,4-1991	3821	50 x 2000	100,000			
	3	6-27-2007	243	50 x 760	38,000	Stable/Same	Area is dry.	
		9-3,4-1991	225	50 x 760	38,000		Grazing, mining	
EO# 015		6-6-2007	1919	816 x 108	88,128	Increase/ Increase	None. No cattle or evidence were seen.	
		7-10-2002	603					
		6-19-1995	520	20 x 300	6000			
		8-3-1993	300	20 x 300	6000		Cows, trampling	
		7-8-1992	No count				None	
EO# 016		6-26-2007	4	6 x 10	60	<u>Decrease/</u> Same	Discrepancy in count might be in how counted.	
		8-24-1993	12	6 x 10	60			
		7-2-1992	12					
FO# 017		6-26-2007	115	20 x 40	800	Increase/ Same	None	
		7-19-2006	52	20 x 40	800		None	

EO# or FO#	Sub-population #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 020	1	7-16-2007	366	100 x 160	16,000	<u>Decrease/</u> Same	Cattle or evidence were seen. Discrepancy in count might be in how counted.	Would be hard to keep cattle out of site.
		8-4-2004	0				Heavy cattle trampling and grazing.	
		5-19-1993	750	100 x 160	16,000			
	2	7-16-2007	0	20 x 60	1200	<u>Decrease/</u> Same	Heavy trampling and grazing.	Revisit.
		6-8-1995	26	20 x 60	1200			
	3	7-16-2007	6	5 x 5	25	<u>Decrease/</u> Same	Area drier.	
		6-28-1995	13	5 x 5	25			
EO# 021		6-19-2007	50	10 x 50	500	Stable/ Decrease	Area heavily grazed by cattle.	Pile slash at edge of forest and along road.
		8-2-2004	25	10 x 50	500			
		8-28-2003	54					
		6-28-1995	155	35 x 165	5775			
		5-19,7-12-1994	90				Cattle trampling	
		6-17-1993	90	25 x 40	1000			
EO# 022	1	7-11-2007	5	100 x 2300	230,000	<u>Decrease/</u> Increase	Area very dry. No evidence of water in creek for some time.	
		7-28-2004	255	40 x 100	4000			
		6-16-1998	895		17,150			
	2	6-29-2007	8	5 x 5	25	<u>Decrease/</u> Decrease	None. Area drier.	
		7-29-2004	155					
		8-20-1998	10		400			

EO# or FO#	Sub- popula- tion #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 022	3	6-29-2007	360	180 x 270	48,6000	Stable/ Increase	Plants on old roadbed.	
		9-15-1998	300		1800		Plants on old roadbed.	
	4	6-29-2007	612	50 x 2250	112,500	Increase/ Increase	None	
		9-15-1998	453		50,000			
	5	6-29-2007	5	30 x 50	1500	<u>Decrease/</u> Same	None	Revisit. How to keep cattle out?
		6-8-94	48	30 x 50	1500	Cattle grazing and trampling in area.		
	6	7-17-2007	1500	75 x 7500	562,500	Stable/Same	None	
		8-22-2005	100				Didn't see the whole subpopulation.	
		6-10-1998	1402		562,000			
	7	7-11-2007	1000	165 x 660	108,900	Stable/ Decrease	None	
		6-11-1998	1336		320,000			
	8	7-18-2007	214	200 x 1600	320,000	Stable/ Increase	Cows had been in the area.	How to keep cattle out?
		7-1&8-19- 1998	173	165 x 660	108,900			
	9	9-6-2007	300	100 x 100	10,000	New	None	

EO# or FO#	Sub-population #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 023	1	6-4-2007	1036	50 x 5280	264,000	Stable/Same	Creek washed out and gully is enlarging.	Address this in Kettle Face Project.
		8-15-2005	36	100 x 5280	528,000			
		5-23&6-16-1995	4750 (Unclear if count includes all sub-populations.)	75 x 5200	390,000		Light-moderate cattle use and trampling.	Pile slash debris at skid road near junction of Renner lake Road and other locations to prevent access to creek.
	2	6-4-2007	1	5 x 5	25	<u>Decrease/</u> Decrease	Growth of red-osier dogwood may have impacted pop.	
		8-15-2005	0					
		7-23-1998	5	10 x 75	750			
	3	9-17-2007	100	100 x 1735	173,500	Increase/ Increase	None	
		7-23-1998	40	30 x 220	6600			
		5-23-1995	25	20 x 20	400		Light cattle use	
	4	6-4-2007	13	20 x 20	400	<u>Decrease/</u> Same	None	If the Sanders' waterline needs repair, monitor activity.
		8-15-2005	0					
		5-23-1995	25	20 x 20	400		Light cattle use.	
	5	6-4-2007	9	3 x 5	15	Stable/ Same	None	
		8-15-2005	50	20 x 1000	20,000			
		5-23-1995	12	3 x 5	15			

EO# or FO#	Sub-population #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 023	6	6-4-2007	26	125 x 850	106,250	<u>Decrease/</u> Same	Area is drier.	
		10-4-1995	814	50 x 450 125 x 850	22,500 106,250 128,750		Along overgrown roads	
	7	6-19-1995	90	20 x 50	1000		Light cattle use.	No 2007 revisit. Revisit in 2008.
EO# 027	1	6-21-2007	481	120 x 2010	241,200	<u>Decrease/</u> Increase	Creek is degraded by cattle trampling.	Address creek degradation in Summit Pierre Project.
		5-22&23-1995	2000	25-200 x 2000	20,000		Cows have altered habitat.	
	2	6-21-2007	5	5 x 5	25	Stable/Same	Cattle in area.	Pile slash to exclude cattle.
		8-5-2004	8	5 x 5	25		Cows have negatively impacted the site.	
EO# 033		7-9-2007	217	50 x 50	2500	Increase/ Same		
		9-11-1997	20-25	50 x 50	2500			
EO# 034		7-9-2007	438	10 x 5280	52,8000	Increase/ Same	Small trees above the <i>Sanicula</i> were cut.	Check to see why trees were cut.
		8-19-1997	25	10 x 5280	52,8000			
EO# 035	1	8-12-2004	0				Site confusingly mapped in 1997.	Requested 1997 site reporter to provide a corrected map. Revisit.
		7-7-97	200	20 x 20	400			

EO# or FO#	Sub- popula- -tion #	Revisit Date	# of Clumps	Area Surveyed (ft.)	Total Area (ft. ²)	Subpopulation Trend/Survey Area	Threats or Comments	Follow-up
EO# 035	2	6-13-2007	0				Site confusingly mapped in 1997.	Request 1997 reporter to correct map. Revisit.
		<i>7-7-97</i>	30					
	3	6-13-2007	1	2 x 2	4	New		
EO# 040		6-26-2007	101	20 x 50	1000	Increase/ Increase		
		8-2-2001	1	1 x 5	5			

Appendix D. Photos of *Sanicula marilandica*.

Sanicula marilandica at White Creek, (EO# 035) June 13, 2007.



Sanicula marilandica in foreground at Zodiak Creek, (EO# 011) June 27, 2007.

