



Newsletter of the Idaho Native Plant Society • Promoting Interest in Idaho's Native Flora

Spalding's Catchfly: A Monitoring Challenge

By Janice Hill, Idaho Natural Heritage Program (IDNHP), Idaho Department of Fish and Game

It is a common belief that plants are easier to monitor than animals; they can't run away. Most plant demography studies assume all plants will be detected, i.e., their detection probability = 1; however, values <1 are widespread in demography studies and can lead to biased results (Kéry and Gregg 2003). Some plants exhibit prolonged dormancy in which a plant remains alive but invisible belowground for one or more growing seasons. This presents an obvious detection problem. Tracking marked plants in permanent plots for consecutive years is needed to distinguish dormant from dead plants. Additionally, for plants with an unobservable dormant stage, all plants emerging aboveground for a growing season need to be detected with certainty or dormancy will be overestimated (Kéry et al. 2005). Aboveground plants, however, often go undetected as well due to such factors as stage class size, surrounding vegetation, herbivory, and observer ability.

The Threatened plant Spalding's catchfly (*Silene spaldingii*) is a long-lived perennial forb with whitish flowers and glandular stems that occurs in Palouse and canyon grasslands, sagebrush steppe, and open-canopy pine stands of the inland Pacific Northwest. Aboveground portions of the plant die back completely over winter and emerge in late May/early June as either rosette plants, single-stemmed plants, or multi-stemmed plants from an underground stem, the caudex. Flowering occurs from mid-July into October. This species is known to exhibit prolonged dormancy (Lesica 1997).

Most surveys and monitoring have been conducted at flowering time. A Montana demographic study conducted at flowering time reported high

levels of prolonged dormancy, up to 50% annually, and considered all rosettes to be recruits (Lesica 1997). Other researchers also reported high levels of prolonged dormancy and considered rosettes to be recruits or questioned whether rosettes can be adults (Taylor et al. 2012, Luke 2013). Studies of this species in Idaho canyon grasslands, however, documented: 1) several stemmed plants flagged early in the season had disappeared completely by flowering (Hill and Gray 2000), and 2) several rosette plants were connected to mature caudices and/or occurred at sites that supported reproductive stemmed plants in previous years (Hill and Fuchs 2003, Hill and Weddell 2003). This indicated that all aboveground plants may not be detected at flowering and that rosette plants may be adult plants.

The Recovery Plan for Spalding's catchfly (U.S. Fish and Wildlife Service 2007) stipulates: 1) demographic monitoring for 10 consecutive years to obtain good estimates for population viability studies, and 2) trend monitoring every 5-10 years

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PO Box 9451, Boise, ID 83707
www.idahonativeplants.org
public3@idahonativeplants.org

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Letter from the President

As I write this letter, I am sitting in my camp trailer, parked on the Right Fork of Iron Bog Creek in the Pioneer Mountains. I'm here with my wife and we plan to watch the eclipse before we set out for home next week. This is one of my favorite places in the entire world and I visit often. I find peace in this secluded location and it helps me bring focus back to the important things in my life. In this country, we are remarkably blessed to have public lands that we can access and enjoy. It is a rare privilege in a world where exclusion is the rule. Keeping these public lands healthy and accessible is one of the reasons I am a part of the Idaho Native Plant Society. This organization is made up of a group of like-minded people who feel the value of protected public wildlands. This organization gives a unified voice to the conservation of both rare and common plants and the habitats they colonize. It brings influence to help us accomplish that goal. I thank all those who feel strongly enough about conservation issues to invest a small part of their lives to this society. I applaud your efforts.

Stephen Love
INPS President

Idaho Mystery Plant

This photo was taken by Paul Allen in east-central Idaho's Lemhi Mountains. What is your guess for this plant? The answer will be revealed in the next edition of *Sage Notes*. The Idaho Mystery Plant in the June 2017 issue was marsh felwort (*Lomatogonium rotatum*) in the gentian family (Gentianaceae). It can be found in alkaline or saline soil wetlands. The distribution of marsh felwort includes the Rocky Mountains from Alaska southward to New Mexico.



Have an Idaho Mystery Plant to share? Send it in to the editor:
sage-editor@idahonativeplants.org.

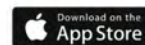
— *Michael Mancuso*

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Announcements

Idaho Native Plant Society 2018 Annual Meeting

The 2018 Idaho Native Plant Society's annual meeting will be held in the Coeur d'Alene Mountains along the North Fork of the Coeur d'Alene River. The meeting is scheduled from Friday, June 29, to Monday, July 2. We have reserved the group camp site at the US Forest Service Bumblebee Campground, located between Wallace and Coeur d'Alene. The campground is eight miles north of the Kingston exit (Exit 43) off of Interstate 90. The camping fee will be included in the registration fee for the annual meeting. The campground has no RV hook-ups or electricity. It does have picnic tables, campfire grills, potable water, and vault toilets.

Anyone not wishing to camp will need to make arrangements in the nearby towns of Kellogg (16 miles), Wallace (27 miles), or Coeur d'Alene (39 miles). Rooms range from \$40 to well over \$100. Spokane's Hoopfest will be going on the same weekend driving up demand for motel rooms in the entire region so make your reservations early (as in now). Several private RV Parks with hook-ups can also be found within a few miles of our group camp site.

Registration procedures, costs, schedule of events, and specific hikes/tours are still to be determined. Our rough schedule of events is as follows. Check in will occur Friday afternoon. Friday evening we will have an informal get-together. Saturday and Sunday we will have hikes and tours during the day to enjoy the many native plant species found in the North Idaho mesic forests. Specific hikes and tours have not been finalized yet, but could include hikes into subalpine mountain lakes and along



Revette Lake is one of several subalpine lakes being considered for the 2018 INPS Annual Meeting. Photo by Derek Antonelli.

forest streams and tours of giant western red cedar groves. Saturday evening will be a catered dinner provided by the Snake Pit (a historic local establishment). The dinner will be followed by the formal INPS meeting and then an informative talk by noted naturalist and award-winning author, Jack Nisbet. Jack has written a number of books including works about northwest explorer and fur trader, David Thompson, and pioneer plant collector, David Douglas. Sunday evening we'll have an informal campfire gathering. We may also have an optional plant identification session for those who would like to participate.

— Derek Antonelli

White Pine Native Plant Sale, *continued from Page 12*

growing. In 2017, we sold over 1500 plants at the sale, varying in size from cone tubes to gallon pots. Most of the plants we sell are not available at local nurseries so customers looking for a specific native know to come to our sale.

The White Pine Chapter has benefited greatly from Pamela's leadership. And each year we have more plants, more customers, and raise more money. Now that our bank account is richer we've been able to consider other ways to help native plant enthusiasts. We started small with donations to the INPS ERIG program, signage projects, support for public landscaping, etc. The chapter has now established a grant program to support education projects at local schools, possible scholarships for region-

al research, and restoration and other landscaping projects. Our grant program is described on our chapter website at <http://www.whitepineinps.org/WPgrant.html>. Our first major grant was to Palouse-Clearwater Environmental Institute (PCEI) in Moscow to improve nursery and trail interpretive signage at their John Crock Nursery. John was owner of Hyperspod in Moscow for years and supported all aspects of recreation on the Palouse and elsewhere.

Pamela's work will take her out of the country at the time of the next sale, but before leaving town she promises to aid her successors and the chapter navigating the challenges of the sale. The chapter appreciates very much her efforts and support of INPS. •

Spaulding's Catchfly *continued from Page 1*

to determine if populations demonstrate stable or increasing trends for at least 20 years. These monitoring programs are part of a comprehensive plan for recovery of this Threatened species that also includes other on-going conservation efforts such as additional field surveys, weed control efforts, genetic research, pollinator studies, seed collection/propagation/plantings, habitat restoration, and research to determine effects of fire and livestock grazing.



Spaulding's catchfly. Photo by Karen Gray.

Two Demography Studies

Two demography studies of Spaulding's catchfly were conducted by IDNHP botanists in the canyon grasslands in the Craig Mountain area of west-central Idaho: 1) the BLM study funded primarily by the Bureau of Land Management from 2002-2011 (Hill 2012), and 2) the FWS study funded primarily by the U.S. Fish and Wildlife Service from 2004-2013 (Gray et al. 2011, Hill et al. 2014). To detect all aboveground plants and clarify the status of the rosette plant, we included two complete monitoring periods each year, one soon after emergence and one at flowering time, and included ground-level searches for small rosette plants at both periods. Both studies tracked individual plants in permanent plots (meter-wide belt transects) for 10 consecutive years. During sampling, meter tapes were extended the length of the transects and two reference coordinates, the linear distance along the tape and the perpendicular distance to the tape, were recorded for each Spaulding's catchfly plant. We followed a total of 947 plants (152 BLM) and (795 FWS) during the studies. We identified four stage classes: three aboveground stage classes based on features consistently recognizable at both early and late monitoring: 1) R (rosette): no visible stem between sets of leaves; vegetative; did not bolt into stemmed stages, 2) S (single-stem):

one stem; capable of reproduction, 3) M (multi-stem): more than one stem; capable of reproduction, and one belowground stage class: 4) D (dormant): produces no aboveground vegetation. Demographic estimates were based on stage-based transition matrix and mark-recapture analyses.

Results

Our two studies had different sites, plot designs, and primary observers, and were conducted over slightly different time periods; however, the results of both studies were very similar (Hill and Garton 2017). Our results differed considerably, however, from studies that monitored at flowering (Lesica 1997) or did not conduct ground-level searches for R plants (Taylor et al. 2012).

Detection of Aboveground Plants:

The two monitoring periods allowed us to determine that we detected essentially all (99.9%) aboveground plants at early monitoring; however, by flowering time, 48% of these aboveground plants were not detectable (disappeared or became unidentifiable). Therefore, we based the determination of demographic parameters on our early data when all aboveground plants were detected. Although early monitoring cannot provide reproductive data, it does provide the total number of plants present in the plots, a number that is essential for determining several demographic parameters, including percent flowering, stage class distribution, transition probabilities, percent recruitment, dormancy, and mortality.



Canyon grassland habitat, Craig Mountain, Idaho. Photo by Janice Hill.

Plant Numbers and Stage Distribution:

Plant numbers changed over the study periods. Two periods of high mortality occurred in both studies associated with two cycles of high rodent activity. This resulted

in a large decrease in plant numbers at the beginning of the BLM study and further decrease at the end of the study; low levels of recruitment (1% annually) did little to offset this decline and plant numbers were considerably reduced at the end of the study. Levels of recruitment were slightly higher early in the FWS study (5% annually), plant numbers were more stable, and large increases in recruitment during the last three years of the study (22% annually) resulted in increasing plant numbers at the end of the study. Although stage class proportions varied annually, averages based on the middle eight years of the studies indicate plants spent 42% (BLM) and 38% (FWS) of their lives in the S stage, 31% (BLM) and 36% (FWS) in the R stage, 19% (BLM) and 18% (FWS) in the M stage, and 8% (both studies) in the D stage.



Adult R plant (3-4 cm) at least 9 years old; was an S, M, and D plant in previous years; no cotyledons. Photo by Janice Hill.

Status of the Rosette:

Other demography studies considered all R plants to be only recruits (Lesica 1997, Taylor et al. 2012). However, our studies showed the R stage was a major vegetative stage for the species with over 1/3 of plants emerging as R plants each year. Most R plants (>65%) were established plants present in previous years as either D, R, S, or M plants. R plants could be either: 1) a first-year recruit (was a seedling the previous year), 2) a juvenile (has not reproduced; remains in the R stage four to six years before reproducing as S or M plants), or 3) an adult (has reproduced as an S or M plant in previous years). The R plant was not a seedling; it lacked the distinctive cotyledons that were present on the much smaller seedlings. Plants often remained as R plants several years, i.e., 28% (BLM) and 38% (FWS) of plants were R plants for three years or longer; several were R plants all 10 years of the studies.

No morphological differences could be distinguished between R plants that were first-year recruits, juveniles, or adults, making the determination of recruitment espe-

cially challenging. Several consecutive years of tracking individual plants in permanent plots and monitoring early with ground-level searches were needed to determine maturity status of R plants.

Prolonged Dormancy:

Our studies indicated prolonged dormancy was a relatively minor component of the life history of this species. Average annual dormancy rate was 10-11% (ranging from 3-19%) and dormancy duration was either one year (90-93%) or two years (7-10%). Other studies conducted at flowering or not including ground-level searches for R plants indicated much higher average annual dormancy rates, i.e., 50% (Lesica 1997), 33% (Lesica and Crone 2007), 42% (Taylor et al. 2012). Dormancy rates also varied considerably from year to year, ranging from 11-74% (Lesica 1997, Lesica and Crone 2007), and bouts of dormancy lasted up to six years (Lesica and Crone 2007).

Transition Probabilities and Life Cycle:

All possible transitions occurred between the four stage classes. The majority of aboveground stage class transitions were stasis transitions in which plants stayed in the same stage from year to year. Remaining transitions were equally divided between growth from smaller to larger stages and retrogression from larger to smaller stages. Another study that sampled at flowering indicated much higher probability of aboveground stages transitioning to the dormant stage (especially the R to D transition), much lower R to R stasis transitions, no growth transitions from R stage to the stemmed stages, and no retrogression transitions from the larger stemmed stages to the smaller R stage (Lesica 1997).

Response to Stress...Become Smaller:

Our studies were the first to document retrogression from the larger stemmed stages to the smaller R stage. These retrogression transitions increased with two episodes of high rodent activity (a major threat) and a July 2007 fire. The larger stemmed plants were more targeted by rodents [likely the montane vole (*Microtus montanus*)] than the smaller R plant. The R plant likely plays a major survival role for this species. Transitioning to a smaller form in response to disturbance or a harsh environment can result in a higher speed of recovery from disturbance than dying and requiring recruitment to replace that individual (Salguero-Gomez and Casper 2010).

Fire Increase Recruitment?:

A July 2007 wildfire burned the majority of our plots. Recruitment, which was relatively low prior to the fire

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[1% (BLM) and 5% (FWS)], showed no increase for several years after the fire. The fire may have created conditions that inhibited recruitment (i.e., killed moss - a major ground cover in several plots), reduced plant litter and biomass, and darkened the soil surface. These conditions can increase soil temperature and evaporation and reduce moisture in upper soil layers (Redmann 1978, Defossé and Robberecht 1996). Recruitment increased markedly in the FWS study three to four years after the fire as mosses re-established. Dew deposition on moss may have aided seedling survival. Our findings differed from a demography study that considered rosettes to be only recruits and reported that fire enhanced recruitment (Lesica 1999).



Small seedlings (<1 cm) with distinct cotyledons. Photo by Juanita Lichthardt.

Detectability Declined over the Growing Season:

Almost half of aboveground plants disappeared or became undetectable or unidentifiable by flowering time. The R stage was disproportionately affected; on average, ~80% of them were not detectable at flowering. The R plant is ephemeral, i.e., it is present early but does not increase in size or bolt into a stemmed plant or become reproductive, and usually disappears completely by flowering. Some stemmed plants also disappeared by flowering, including 25%-30% of S plants and 15% of M plants. Another 15% of M plants became unidentifiable because they lost stem(s) and appeared to be S plants at flowering. Spalding's catchfly is a late-blooming species that occurs in areas characterized by hot, dry summers. Its long taproot enables it to survive, yet aboveground plant tissue is subject to desiccation, herbivory and fire damage that can reduce detectability over the growing season.

Detection probability at flowering showed high annual variability and was considerably reduced from that of

~1.0 for each aboveground stage at early monitoring. Average detection probability at flowering time (averaged over the 10 years of both studies) was 0.21 ± 0.15 for the R stage, 0.73 ± 0.27 for the S stage, and 0.65 ± 0.28 for the M stage. This high annual variability decreases the usefulness of using these average detection probabilities as correction factors for monitoring at flowering.

Bias of Late Monitoring:

How biased would our results have been if we had monitored only at flowering time in our studies after almost half of the plants had disappeared? Determination of demographic parameters based only on our late monitoring data showed: 1) underestimation of plants emerging aboveground each year by 48%, 2) underestimation of the number of plants in our plots by 40%, 3) overestimation of prolonged dormancy two to three times (70% of indicated dormancies were false), 4) missing 90% of recruitments, 5) over-representing the D stage and the role of dormancy in this species, 6) underestimating the R stage and its importance for survival, 8) many false positives (recruitments, dormancies and mortalities that had not actually occurred) and false negatives (missed recruitments, dormancies and mortalities that had actually occurred), and 9) declining plant numbers the last three years of the FWS study (plant numbers actually increased during this time). Monitoring only at flowering time misses most recruitments and juvenile periods. New recruits are R plants, they remain in the R stage for four to six years before reproducing as stemmed plants, and 80% (on average) of R plants have disappeared or become undetectable/unidentifiable by flowering. A detailed analysis of the influence that time of monitoring has on demographic estimates for this species is presented in Hill and Garton (2017).

Monitoring Challenges:

Monitoring should occur soon after emergence when all aboveground plants can be detected. Experienced observers are needed to identify vegetative Spalding's catchfly plants, locate the small R plant on the ground surface, and distinguish it from several similar-appearing rosettes of associated forbs such as western groundsel (*Senecio integerrimus*) and shooting star (*Dodecatheon* sp.) In our plots, the presence of retrorse cilia hairs was the distinguishing feature for Spalding's catchfly, but confirming their presence required examining the R plant, in place, with a hand-lens.....not an easy task!

It is also difficult to determine what constitutes an individual plant because of belowground connections of shoots to the caudices, the presence of both single-stem

and multi-stem plants at the same site, and the tendency for several plants to occur in close proximity from recruitment events (individual plants can occur within two to three cm of each other). Some researchers have considered each stem as a plant, while others have included all stems within a 20 cm-diameter as an individual plant. A couple methods we used were finger-tracing stems below the ground surface or moving one stem to detect movement in an adjacent stem.



Looking for retrorse hairs on *R* plant leaves requires close inspection. Photo by Karen Gray.

Trend Monitoring:

Methodology for monitoring population trend is currently being developed (U.S. Fish and Wildlife Service 2012). The results of our studies indicate an effective and accurate trend monitoring method that could be accomplished with minimal time and effort. The number of plants in plots could be determined by following marked plants in permanent plots for two consecutive years, monitoring once each year soon after emergence and including ground-level searches for *R* plants. Count all plants seen the first year and add any additional plants seen in the second year; this will detect any plant in a one-year dormancy and probably at least one of the years of any plant in a two-year dormancy. This procedure could be conducted every 5-10 years to determine trend.

Conclusion

Spalding's catchfly is a challenge to monitor due to detection problems with both dormant and aboveground plants. The detection of all plants that are visible aboveground, including those that are small or only visible for a brief period of time, is a critical factor in determining the number of dormant plants that are invisible belowground. When and how monitoring occurs is extremely important in obtaining unbiased demographic data. Our demographic studies demonstrated that 1) essentially all

plants emerging aboveground for a growing season are present and detectable soon after emergence, 2) many plants disappear/become undetectable or unidentifiable by flowering time, and 3) monitoring only at flowering time has high potential to considerably bias demographic estimates. Early monitoring that includes ground-level searches for small *R* plants can eliminate detection problems of aboveground plants and allow for unbiased estimates of prolonged dormancy and other demographic parameters. Our studies have implications for other plants with small, inconspicuous, ephemeral, or dormant stage classes, and those with long growing seasons in harsh environments where detectability of aboveground plant tissue may decrease over the growing season.

Acknowledgements

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White Pine Chapter Awards First Grant

By Judy Ferguson, White Pine Chapter

The White Pine Chapter of INPS is now sponsoring a grant program. The proceeds to fund this program come from profits from our annual native plant sale. This program was developed to promote awareness and use of local native plants across the many landscapes and plant communities found in north-central Idaho (as well as neighboring parts of eastern Washington). A few examples of projects that are appropriate for this program include: restoration of degraded sites using native plants, incorporating native plants into landscaping projects in public places, trail or other educational signs, seed collection, and research that involves all aspects of native plants. We want to make sure that teachers, graduate students, land management entities involved in ongoing research, and other potential applicants are aware of our program. We hope to use the local grant program as a supplement to the State INPS ERIG (Education Research Inventory Grant) program. For more information on ap-

plying, please see the White Pine Chapter website (<http://www.whitepineinps.org/>).

The first White Pine Chapter grant was awarded to the Palouse-Clearwater Environmental Institute (PCEI). The \$1000 grant award will help PCEI expand the breadth of their outdoor educational programming with permanent native plant identification signage. Their project fits the purposes of the White Pine Chapter grant program—to promote awareness of and the use of local native plant species in habitat restoration and landscaping in our region. PCEI hosts field trips year-round for local school children, who come to tour the group's hiking trails and native plant nursery. The White Pine Grant Committee agreed that PCEI provides a very effective learning environment. The addition of signs with common and scientific names and information about native plants on site will help to further educate both school children and the public about native plants. •

A New *Lomatium* Species in the Boise Foothills

By Jim Smith, Boise State University

Ongoing collaborative research between Boise State University and the College of Idaho has discovered that one of the more common wildflowers in the Boise foothills is a currently undescribed species. It is perhaps the most common early, yellow-flowered plant in Military Reserve, a popular open-space area in Boise's east end. The research involves tracing the evolutionary history of species using DNA sequencing—essentially uncovering a "family tree" but at a much larger scale. While building the tree for the plant genus *Lomatium*, commonly referred to as biscuit-roots, it has become clear that one of the branches is not as closely related to previously named species as thought, and instead represents an entirely distinct lineage that lacks a name. This work has been a collaboration between Dr. James Smith of the Department of Biological Sciences at Boise State University, Dr. Don Mansfield at College of Idaho and undergraduates working in both of their labs.

We are seeking a donor who would like to support this research and, in return, to have the opportunity to name this new species. The donor will work directly with Drs. Smith and Mansfield to designate the new species name and to follow all nomenclatural rules (see terms below) to

assign the name which will be assigned forever to this unique plant. The opportunity to name a new species is a rare event and the rules of Botanical Nomenclature ensure that the name will persist in perpetuity.

The name might be based on your loved one, the name of someone you want to honor, real or fictional, living or deceased—all with the proper Greek or Latin formulation. We do ask that names not be used in a negative context (see terms below). The name will be in the genus *Lomatium*. Examples of existing names in this genus are *Lomatium basalticum*, *Lomatium cusickii*, and *Lomatium simplex*. The naming opportunity would be for the word that follows *Lomatium*, called the specific epithet.

A Boise State University webpage (URL below) has more detailed information on how to make a bid. The webpage also contains photographs of the species. Bidding for the opportunity to name the new *Lomatium* species will end in late October. Bidding will start at \$10,000. If you are interested and cannot find the page, contact Jim Smith at jfsmith@boisestate.edu.

<https://giving.boisestate.edu/name-boise-foothills-plant/> •

Grass and Weeds on the Palouse

By Judy Ferguson, White Pine Chapter



Weeding the Whelan Cemetery. Photo by Judy Ferguson.

The White Pine Chapter and the Palouse Prairie Foundation co-sponsored a Grass Identification Workshop in Pullman, Washington, on June 17 at the home of Joan Folwell. Dr. Richard Old, a well-known Palouse botanist, who developed an interactive weed ID guide called XID Services, gave a very informative workshop on grass identification to an enthusiastic group of 23 participants. He started this grass adventure by asking us to identify photos of several well-known people, who all had similar

human characteristics (brown eyes, long hair, and straight teeth). He assured us that it was not much different to recognize different characteristics in grass species, and there are far fewer grass species to learn than humans. First, Dr. Old taught us how to recognize different characteristics of grasses that aid in identification. We had to learn fast because the ID quizzes came next! We took quizzes on learning to differentiate perennial from annual/almost annual grasses, panicle types, stature, and stem characteristics. He even threw in a few ringers. One specimen was not even a grass! We learned a great deal about grasses while having fun, a rare combination.

After an enjoyable lunch provided by Joan Folwell and Charlotte Omoto, most people who attended the grass workshop group went to Whelan Cemetery, a pioneer cemetery, to pull weeds. Whelan Cemetery encloses a beautiful Palouse Prairie remnant. White Pine members really know how to get after those weeds. Many bags of weeds were removed. We also saw many lovely Palouse Prairie wildflowers in bloom, even the rare Palouse thistle (*Cirsium brevifolium*). •

2017 Idaho Botanical Foray

By Jim Smith, Boise State University

In mid-July 2016, I took a collecting trip to Bear Valley, north of Lowman, Idaho. The enormous meadows were amazing and I knew that a day trip with just me collecting would not scrape the surface of the area's botanical diversity. I thought this would be the ideal place for the 2017 Idaho Botanical Foray. Then in August of 2016 the Pioneer Fire started south of there and kept going. I thought a change in location for the foray would be necessary, but then decided it might be worthwhile sampling in an area one year after the burn.

Fortunately, most of the meadows and the forests north of the Bear Valley meadows did not burn and we were able to make some great collections. Early July was a perfect time and some of the meadows were a sea of pale purple with Penstemon. The first day a single group drove to Dagger Falls along the upper Middle Fork Salmon River and collected near the falls and campground—mostly forest understory species, but also with some interesting plants along the steep rock faces, including an unusual Jacob's ladder (*Polemonium* sp.).

Other days had groups venturing into the meadows and heading up the mountains. One road led to the Bear Valley Lookout, but we were not able to get to the summit due to snow drifts that covered parts of the road. We were able to get many of the species that just appear at snowmelt such as spring beauty (*Claytonia lanceolata*). Others that headed up the mountains found at least one steer's head (*Dicentra uniflora*).

We did eventually head into the burned area, south out of Bear Valley toward Lowman. The fire was intense with all the trees completely burned and the ground completely white in places. However, at Clear Creek summit there is a bit of a wetland and we were able to collect several species there that survived the blaze.

On the last day we headed up White Hawk Mountain Lookout road, again traveling through burned forest, but this was closer to the edge of the fire and the burn was not as intense. There were many patches of flowering plants including a large stand of wide-fruit mariposa (*Calochortus eurycarpus*). At the gate we parked and walked to the summit where there were large numbers of



A common penstemon in Bear Valley. Photo by Steve Martin.



Foray group photo. Photo by Steve Martin.

prairie lupine (*Lupinus lepidus*) and alpine buckwheat (*Eriogonum pyrolifolium*), and a population of Sacajawea's bitterroot (*Lewisia sacajaweaana*).

The collections returned to Boise State University, have been dried and sorted to family and now are ready to be keyed out. Keying workshops are planned for this coming October, November and December to assist in getting names on all of the collections. Everyone is welcome to attend. Dates will be posted by the of September. •

INPS Chapter News

CALYPSO CHAPTER

When: Meetings are the first Wednesdays of March, April, May and October at 7:00 pm. Field trips take place during the spring, summer, and early fall months.

Where: Meetings are held in the conference room of Idaho Department of Fish and Game, 2885 W. Kathleen Ave., Coeur d'Alene.

Contact: Derek Antonelli, ds.ca.antonelli@gmail.com

Upcoming events:

October 4: Tentative presentation for Chapter meeting - Plants of ponderosa pine/Douglas-fir forest habitat types.

October 17: North Idaho Rare Plant Working Group meeting, 9:30 am to 3:30 pm, location TBD.

LOASA CHAPTER

When: Meetings are held the third Thursday of each month at 7:00 pm.

Where: Taylor Building, Room 248, College of Southern Idaho, Twin Falls.

Contact: Bill Bridges, bridgesbill34@yahoo.com

PAHOVE CHAPTER

When: Meetings are held on the second Tuesday of each month from September–April at 7:00 pm. Dates and times are occasionally subject to change. Upcoming meeting information is sent to members via postcard and/or email. Events are also posted on the Pahove Chapter page of the INPS website:

<http://idahonativeplants.org/local-chapters/pahove/>

Where: The MK Nature Center Auditorium, 600 S. Walnut Street, Boise.

Contact: For more information about Pahove Chapter activities please visit the Pahove Chapter page of the INPS website, or email Karie Pappani at pahove.chapter.president@gmail.com

Board Position Opening:

Pahove chapter is seeking a new board president. Current president, Karie Pappani, has served the chapter exceptionally for 6+ years, and the time has come to select her successor. Interested individuals are encouraged to contact the board at pahove.chapter.president@gmail.com

Upcoming events:

September 12: Pizza Party/Season Kick-off at the Idaho Botanical Garden.

October 10: Peggy Faith will share what she learned at the National Native Seed Conference in Washington, D.C.

November 14: Martha Brabec will discuss ongoing post-wildfire restoration efforts at Table Rock in the Boise Foothills.

December 12: James Smith will discuss research on the genus *Lomatium* (biscuit-root), including the discovery of a new species in the Boise Foothills.

SAWABI CHAPTER

When: Meetings are held the first Monday of the month.

Where: The Wood River Room in the Earl Pond Student Union Building on the Idaho State University campus during the winter months. Meeting starts at 7:00 pm. Refreshments are available after the meeting.

Contact: Karl Holte at plantprof@live.com, (208) 241-8358.

UPPER SNAKE CHAPTER

The Upper Snake Chapter is currently inactive.

Contact: Rose Lehman, jojorose@cablone.net

If anyone is interested in reviving the chapter, they are welcome to contact Rose.

WHITE PINE CHAPTER

When: Meetings are held once a month except during the summer. Field trips occur most any month. Please check the chapter website at www.whitepineinps.org for events which may be scheduled or finalized after Sage Notes is printed; or email the chapter officers at whitepine.chapter@gmail.com.

Where: Great Room of the 1912 Building, 412 East Third St. in Moscow (between Adams and Van Buren).

Contact: INPS, White Pine Chapter, PO Box 8481, Moscow, ID 83843 or whitepine.chapter@gmail.com

WOOD RIVER CHAPTER

When: Meetings are held various weekday evenings beginning at 7:00 pm.

Where: Meetings are held at the Sawtooth Botanical Garden, located three miles south of Ketchum, on Highway 75 and Gimlet Road.

Contact: Cynthia Langlois at cplangloisACRP@msn.com for information about fieldtrips and presentations. Also, check the Sawtooth Botanical Garden website: sbgarden.org for updates on presentations.

White Pine Chapter's Native Plant Sale

Photos and article by Nancy Miller, White Pine Chapter

The White Pine Chapter held its 6th annual Native Plant Sale on May 20. We've come a long way since our first sale on May 26, 2012. Many factors influenced the chapter in deciding to hold a sale. Some thought it would be a good way to raise money for chapter activities; others were growing plants—particularly natives—but had no place to sell or make them available to others; others wanted to encourage fledgling nurseries who were raising native seed and native plants for restoration, but weren't connecting with the growing numbers of individuals who were asking for native plants for their personal plantings.



Let the plant sale begin.

One of the first to nudge the process along was Thad Davis, who grew a number of native plants on his Kendrick property. He had been part of a native plant society chapter nursery and sale project in Western Washington. His early idea was for the chapter to have a location in Moscow where natives could be grown and chapter members could be part of the growing process. He readily jumped on board for the first plant sale, growing many plants at home to bring to the sale and supplying helpful information based on his prior experience with native plant sales.

Two other people instrumental at the beginning, encouraging the chapter board to consider a native plant sale were Trish Heekin and Jacie Jensen. Jacie and Wayne Jensen had begun their company Thorn Creek Native Seed Farm in 2004. On some of their family's farmland they were growing native seed—and in particular seeds of Palouse Prairie native plants. The Jensen family is stewards of over 100 acres of Palouse Prairie on Paradise Ridge and realized that there was a need for a company to grow these native seeds to help those restor-

ing and preserving Palouse Prairie habitats. They had recently begun selling native plant seed in packets to individuals, in bulk to restoration projects, and to local nurseries who were growing native plants such as Wyeth's buckwheat, blanket flower, blue flax, mule's ears, and balsamroot primarily for restoration projects.

Trish Heekin was already involved with Palouse Prairie research and riparian restoration projects.



Trish Heekin and Liz Martin helping with set-up.

She too was growing some native plants in her backyard and was also looking for opportunities for the nurseries who serviced her projects to grow their businesses. She and Jacie, along with Dave Skinner, then of the Washington State University (WSU) Pullman Plant Materials Center, were actively involved in the Palouse Prairie Foundation which was promoting the preservation of Palouse Prairie areas. Our proposed sale dovetailed with their plans.

Nancy Miller knew Susan Ziebarth, the Pahove Chapter Native Plant Sale manager, through other INPS activities. When it looked like there actually would be a White Pine Chapter plant sale in the spring, our chapter had questions and Susan had answers. She was very gen-



Sale chairperson Pamela Pavek.

erous with her knowledge and provided much needed business information (such as where to get a nursery license from the state or how to figure the sales tax we owed) and practical advice (such as using color coded labels to indicate the pricing). After visiting several sites in Moscow we decided on the Arts Room of the 1912 Building in

downtown Moscow. With its concrete floors, easy access and parking, and helpful management (Thanks, Jenny Kosgrove!) it worked well for us that first year and all the subsequent years. And we thought “It’s close to the Farmers’ Market so perhaps people will come from there to the sale.”

That first winter and spring were very busy. We visited Pat Mason of Pleasant Hill Farms near Troy to see what plants she might provide. There were plant spreadsheets to be created and maintained, plant species display signs to research, design and assemble, plant labeling parties to arrange, publicity posters and flyers (and who would place them where), and newspaper announcements to write. Volunteers needed to be recruited for setup and the sale. Since it was our first one we overdid as new parents will.



Penny Morgan ready to sell some plants.

Pleasant Hill Farms grew 14 varieties of beautiful Palouse Prairie natives (from Jensen seed) accounting for 400 plants. Jacie allowed us to transplant some plants which were growing outside the plots at her farm. Chapter members planted seeds and divided their perennials—Thad Davis, Steve Flint, Maynard Fosberg, Trish Heekin, Ray and Bettie Hoff, Jacie Jensen, Nancy Miller, Gerry Queener, and Dave Skinner are on that first 2012 list and accounted for another 500 plants. In addition, Christine Nauman of Cricket’s Garden had a table with over 300 native plants for sale which were not counted in the total numbers or amounts. On setup day before the sale we packed the plants in and hoped for the best! It was a success! And we knew that a lot more native plants were growing on the Palouse!

The second year we visited Plants of the Wild in Tekoa, Washington to check their available plants and added more species—particularly some being grown from Jensen seed. More species meant more species display

signs to design, print and laminate. We tweaked the process, redid the new availability list, created more labels, recruited more volunteers to help with setup and publicity. Idaho Fish and Game provided some plants which were left over from restoration projects and the University of Idaho (UI) Nursery had some bareroot plants from their Arbor Day Sale. And thus we grew.



A happy customer.

The third year Pamela Pavek began her tenure as Plant Sale Chairperson. Her ‘get it done’ attitude, organizational skills, and specialized plant knowledge brought much to the 3rd, 4th, 5th and 6th sales. Her presentations to our chapter and other groups have gotten more people interested in growing natives. She has streamlined the sale processes considerably and gotten more volunteers involved. We tried a Friday members-only sale in 2016 to encourage more new members (and late membership renewals) and it worked. But we weren’t able to repeat the Friday sale in 2017 due to a time conflict at the 1912 Center. We will schedule our dates early now as having members come to the pre-sale cut down considerably on the congestion at the public sale. With Mother’s Day and UI and WSU graduations to factor in to the date calculation, there isn’t much leeway. And this year the UI Arboretum moved their sale to the same day as our White Pine Sale which gave us all goose bumps—but it was a win-win situation as more people were out looking for plants.

It has been great to have a wonderful group of volunteers—in addition to those helping customers at the sale, we’ve had very knowledgeable advisors and consultants, members willing to store supplies and equipment, write labels, design species and other signs, and especially manage the publicity to make the public aware of our sale and the benefits of growing native plants.

We usually do not have many leftover plants. Pat Mason takes any of hers back to sell to restoration projects. This year we did have some bareroot shrubs from the UI Nursery which are now potted, growing and looking for a winter home. Already some volunteers have seedlings

Continued on Page 3

White Pine Chapter Working Field Trip on Center Ridge

Photos and article by Nancy Miller, White Pine Chapter

On June 3, 10 members and friends of INPS White Pine Chapter accompanied Mike Hays of the Nez Perce and Clearwater National Forests for a day of pulling common crupina (*Crupina vulgaris*)—a noxious weed that threatens sites occupied by Spalding’s catchfly (*Silene spaldingii*), a federally listed Threatened plant species. Of course we also spent time identifying plants new to most of us, all while viewing some spectacular scenery.

Some participants came early from Moscow, others had stayed the night in Grangeville—all met up with Mike in Grangeville and we headed south on Highway 95. We then turned off onto the old Highway 95 and immediately onto FS Road 462. We traveled through some private forest areas and eventually made our way to our first stop—the Grave Point Lookout area.

We first checked an enclosure which is near the turnoff to the lookout. It seems to be a mystery as to why it’s there, but it gave us the opportunity to see some different plants and to discuss the differences between inside and outside the enclosure. Cattle grazing outside the enclosure definitely has affected this moist meadow at the forest edge. Tobacco root (*Valeriana edulis*) was one of the plants only seen inside the enclosure. One plant Mike identified and discussed was few-flowered shooting star (*Dodecatheon pulchellum*) which was blooming prolifically. He compared it to Cusick’s shooting star (*D. cusickii*) which is similar, but more typical of drier sites. In some areas of the forest such as Hog Meadow Creek you can see both species. We saw two violets—the dainty-looking (but tough) blue violet (*Viola adunca*) and the yellow-flowered, showier Nuttall’s violet (*V. nuttallii*). There were other discussions which got as botanical as one wanted—for example, the various species of potentilla—the different leaf shapes and arrangements and their variability even within a species which keeps botanists guessing. Cat’s ear (*Calochortus elegans*) were blooming everywhere, but broad-fruit mariposa



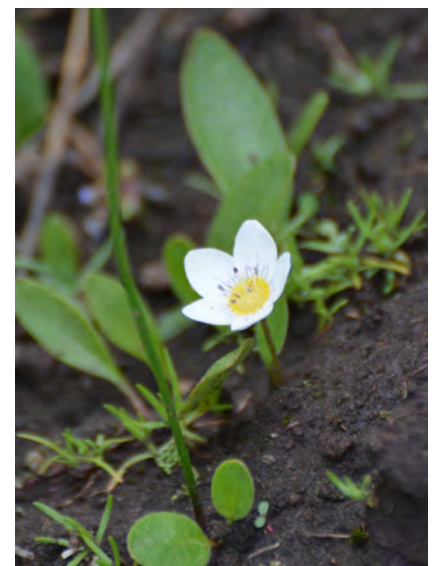
Balsamorhiza incana.

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(*C. nitidus*) was not blooming yet. Dwarf hesperochiron (*Hesperochiron pumilus*) was a new plant for most in the group.

Most vehicles made it up the rutted road to Grave Point Lookout—even the Tesla whose suspension had to be raised to make it (and it still may have scraped a little). From the lookout the views of the Snake River Canyon were very impressive. On the windswept rocky balds balsamroots with both flat and incised leaves were compared (sometimes with *Balsamorhiza incana* both types of leaves appear on the same plant—we didn’t feel so bad that sometimes the experts are confused). Several species of biscuit-root (*Lomatium* spp.) were pointed out and compared. Two larkspurs—*Delphinium depauperatum* and *D. nuttallianum* were discussed, as we would see both during the day. It was a strange place to see big sagebrush, but *Artemisia tridentata* (some say ssp. *vaseyana*) plants were in evidence.

Mike found one miniature flower of dwarf monkeyflower (*Diplacus nanus*) to show us. A locally endemic white composite, Engelmann’s daisy (*Erigeron engelmannii* var. *davisii*) was everywhere on the rocky slope—even in the two-track road—and was very photogenic when the wind died down enough for a photo-op. Other



Hesperochiron pumilus.

showy forbs included harsh paintbrush (*Castilleja hispida*, yellow), Fendler’s waterleaf (*Hydrophyllum fendleri*) with a larger ball head than ballhead waterleaf (*H. capitatum*), and a pink blooming sticky phlox (*Phlox viscida*). On the way down, a sighting of Brown’s peony (*Paeonia brownii*) was a treat for all, but especially those who had never seen it before.

We progressed south on the breaks to Center Ridge which is just north of Mud Springs Ridge (where one of the INPS 2016 annual meeting field trips took place). A lunch break was very welcome before starting the trek on the Center Ridge trail to the *Silene* location. Much of the way was through dry ponderosa pine habitat on a nar-



Center Ridge, north of Mud Springs Ridge.

row, dry, slippery trail. I believe it was longer (at least time-wise) than had been advertised. In compensation there were blooming lupines (*Lupinus* sp.), balsamroot, Douglas' triteleia (*Triteleia douglasii*) of the most intense purplish-blue I've ever seen, harsh paintbrush (reddish orange), delicate purple Jacob's ladder (*Polemonium* sp.), and death camas (*Zigadenus venenosus*). Eventually we came out on an open ridge with xeric blue-bunch wheatgrass grasslands interspersed with forbs (Idaho fescue was higher up in the moister ridge areas). We had been warned there would be an electric fence, but when we arrived it was not turned on. Mike discussed the history of the site and the politics of protecting the Threatened Spalding's catchfly. Below the trail the crupina was very thick in some areas, but it was sparse in the fenced area with the Spalding's catchfly. This Spalding's catchfly population was found in 2006 and at the time was very clean grasslands with only a few crupina plants.

We spread out across the ridge and moved up and across searching for crupina. It was generally about 6–7 inches high, light green, and with thin frilly leaves radiating from a central stock. We were trying to pull it before it grew several feet high and bloomed. The scenery here was grand, with snow-capped peaks to the east across the Salmon River Canyon. Below the trail, patches of greenish-gray curl-leaf mountain mahogany (*Cercocarpus ledifolius*) sat majestically on the steep hill among the rocks.

There remained the hike back to the vehicles. A few of us who walked more slowly reached the vehicles just before the faster walkers arrived as they had stayed to weed a bit longer. Time was running out, but most of us wanted to visit Cow Creek Saddle and see how it compared with last year in mid-June. At the saddle we didn't have to walk far from the vehicles as many forbs were in bloom, and most were different from what we'd seen

already on the trip. Even though this is a wind-swept saddle, the site is moister and the plants reflect that. Columbia lewisia (*Lewisia columbiana*) and sulphur buckwheat (*Eriogonum umbellatum*) on the rocky outcroppings; and Payette penstemon (*Penstemon payettensis*), sky rocket (*Ipomopsis aggregate*), silverleaf phacelia (*Phacelia hastata*), and varileaf phacelia (*P. heterophylla*) along the road cut. Lovely penstemon (*Penstemon elegantulus*), Cusick's paintbrush (*Castilleja cusickii*), and field chickweed (*Cerastium arvense*) were all in several areas. Thin-leaved owl's-clover (*Orthocarpus tenuifolius*), a good indicator for Spalding's catchfly in Idaho fescue grasslands, was another first time plant for some of the group.

Throughout the trip we remarked on how plants varied from usual appearances - perhaps because of the prior winter snow and very wet spring. Some plants looked to be on steroids and others were delayed in their flowering. This trip, as usual for one with Mike as leader, was a botanical and educational delight and a wonderful trip for photographers whether using long lenses or mobile phones.

Thanks to Charlotte Omoto, Susan Rounds, Reid and Nancy Miller, Penny Morgan and Steve Bunting, Molly and Dave Hallock and Mike's summer employee Jeremy and his partner Rebecca



Field trip leader, Mike Hays.

for their efforts. Special thanks to Mike Hays who always outperforms what we've come to expect of an outstanding field trip leader! •

Links

Field trip photos: <https://flic.kr/s/aHsm2Qas4z>

Flora associated with the field trip:

<https://flic.kr/s/aHsm2Xipj9>



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Editor: Michael Mancuso,
sage-editor@idahonativeplants.org