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Sage Notes

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

The Plight of Whitebark Pine

Article and Photos by Michael Mancuso, Pahove Chapter

Have you ever hiked a high mountain ridge in Idaho? Or pitched your tent at upper timberline? If the answer is yes, you have likely stood within the shadow of whitebark pine (*Pinus albicauis*)—a 5-needle conifer that inhabits high subalpine elevations in western North America (Figure 1, Page 4). Whitebark pine may reach 60 feet tall on favorable sites, or be reduced to stunted gnarled clumps at the harshest limits of tree growth. Trees typically have smooth grayish bark, and older individuals often take on a lollipop growth form. Whitebark pine is monoecious, producing separate pollen (male) and ovulate (female) cones (Figure 2, Page 4) on the same tree. It begins to produce cones at 30-60 years of age, but generally exceeds 80 years old before having large cone crops. The amount of cone production within a stand of trees can vary greatly from one year to the next. Cone scales do not open to release seeds like most other pines. Instead, whitebark pine relies on Clark's nutcrackers, a jay-like bird, to extract seeds from the cones. Seed caching by the nutcrackers serves to disperse and sow the seeds. Whitebark pine is slow growing and has the capacity to attain great age. Trees greater than 400 years old are common and they may exceed 1000 years. The White Cloud Mountains of central Idaho have the most ancient known individual at >1260 years old.

In this issue:

Whitebark pine's extensive distribution spans approximately 30° of latitude and 20° of longitude. From its northern limit in northern British Columbia, whitebark pine extends southward to include the northern coastal ranges, Cascades, Sierra Nevada, northern Rocky Mountains, Blue and Wallowa Mountains, and several Great Basin ranges in northern Nevada. In Idaho, whitebark pine occurs in mountain ranges from the Canadian border southward to those overlooking the northern edge of the Snake River Plain. The Caribou Mountains near Palisade Reservoir are the only area in Idaho south of the Snake River known to have whitebark pine. Overall, approximately 70% of the species' range is in the United States, the rest in Canada. Nearly 90% of land occupied by whitebark pine in the United States is federally owned or managed.

Whitebark pine is considered a keystone species in high mountain ecosystems because it increases biodiversity, contributes to watershed protection and stabilization, provides food and habitat for numerous wildlife species, and promotes post-fire forest regeneration. Whitebark pine also functions as a foundation species in many areas due to its role in sustaining biodiversity, fostering community development, structure, and maintenance, and modulating important ecosystem processes. In addition to these critical ecosystem roles, whitebark pine has important aesthetic and recreational values in mountain landscapes and a history of cultural use by Native Americans.

Unfortunately, whitebark pine is a species in serious trouble. The main conservation threats are

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Letter from the President

Tired of any and all references to COVID-19, "the virus," "pandemic," or "the new normal"? Me too. I am hoping we are on the cusp of simply forgetting the disruptive issues of the past year. But I realize, we are not done yet. Last Friday, I received the first of two doses of the COVID vaccine. It was a little tough on me for a day or two—body aches, chills and fever—but quickly faded. Also, I realize recommendations include the need to continue living cautiously, even after receiving the vaccine. Still too many unknowns. But I have to say, my heart is lighter and my attitude much improved. I have started planning my next native plant foray. I hear plants calling; I feel a strong need to satisfy my plant cravings and feel that the time is quickly coming to break out of my self-imposed isolation. Caution remains, but excitement has returned.

Receiving the vaccine has also made me more positive when I consider the possibilities of pulling off an INPS meeting this summer. I know that many of you are much lower on the vaccine priority list and that there is still a possibility that we will not get deep enough into the process to be comfortable meeting in person. But there is hope. And I personally believe we need to continue planning with that in mind. Let's assume control of the virus will allow us to visit with our INPS friends, learn from each other, feel the emotions associated with doing something we love and communally partake of the offerings of nature.

Hope to see you this summer.

Stephen Love,
INPS President

Announcement

Botany Field Camp

Idaho State University/Idaho Museum of Natural History is offering a 2-week, 3-credit botany field class for Summer 2021: Week 1: June 14-19 – Idaho State University. Week 2: June 20-26 – Mackay, Idaho Field camp.

The first week will be based from the ISU campus in Pocatello, and entail a mix of classroom time and local field trips. A private cabin north of Mackay, Idaho, will serve as base for the second week, which will include daily field trips and group plant identification sessions. The course provides an opportunity to acquire or upgrade field plant identification skills. You will also learn how to identify unknown plants using keys and regional floras, how to collect and prepare botanical specimens, and be introduced to basic ecological concepts relevant to field botany and field techniques to measure selected vegetation attributes.

The course is open to students from ISU and other universities and colleges, as well as non-degree seeking individuals and professionals. Preference will be given to individuals who register by April 30, 2021. Expect to spend at least half of your time on field trips to a variety of locations and habitats.

You can register for the class at: https://www.isu.edu/registrar/. In the Summer 2021 Class Schedule, select Biological Sci, Course Number = 4499; Course Title = Botany Field Camp. The class is 3 credits of upper division botany and includes an additional $700 fee to pay for field trips transportation, room and board at the private field camp, and supplies.

The course instructors are Michael Mancuso (mmancuso219@hotmail.com) and Trista Crook (tristacrook@isu.edu). Please email the instructors if you have any questions or want more information about the class. Join us for exploring and learning the Idaho flora!

More information about the class is available at: https://www.isu.edu/imnh/ •

Chapter News

CALYPSO CHAPTER

When: Chapter meetings will remain suspended until after full COVID-19 vaccine rollout. Meetings are normally held the first Wednesday of March, April, May, and October at 7:00 pm.

Where: Meeting are held in the Wildlife Building, North Idaho Fairgrounds, Coeur d'Alene.

C***ontact:*** Derek Antonelli, ds.ca.antonelli@gmail.com

Upcoming Events

Field trips take place during the spring, summer, and early fall. Assuming reasonable COVID-19 levels, small-group outdoor plant walks will begin in April.

Antione Peak Plant Surveys: We will be conducting surveys to generate plant list for the conservation area near the Spokane Valley. Surveys will start at 10:00 am. Tentative dates are April 17, June 5, July 17, and August 28. Everyone welcome. Watch for details via chapter email.

April 24: Plant Walk. Meet at the Nature Conservancy's Cougar Bay Preserve on the east side of US 95 at the bottom of Mica Hill at 10:00 am.

Other trips: We are soliciting additional ideas for spring and summer field trips at this time. Chapter emails will provide details. Contact Derek to be added to the email list.

LOASA CHAPTER

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

Where: Taylor Building, Room 247, 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 pm. Times, dates, and topics are tentative. Current information will be sent to members via email. Events are also posted on the Pahove Chapter page of the INPS website: https://idahonativeplants.org/pahove/

Where: Meetings are usually held at the MK Nature Center Auditorium, 600 S. Walnut St, Boise; for the safety of our community, they will be on Zoom until further notice.

Contact: For more information about Pahove Chapter activities visit the website: www.idahonativeplants.org or email Karie Pappani at pahove.chapter.president@gmail.com

Upcoming Events

March 9: Josh Newman, USFS Forester "Bogus Basin Forest Management"

April 13: Jennifer Sowerwine "Biocultural Systems, Food Security, and Eco-cultural Restoration in the Klamath River Basin"

May 9: Wonderful Wildflower and Weed Show, Idaho Botanical Garden (2355 Old Penitentiary Road, Boise), 11 am–4 pm. Cost is IBG Admission; free for IBG members and reciprocal admission program. Face Masks Required.

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***Whitebark Pine**...Continued from Page 1*

Figure 1: Whitebark pine in Pioneer Mountain, Idaho

white pine blister rust (WPBR; *Cronartium ribicola*), mountain pine beetle (MPB; *Dendroctonus ponderosae*), altered fire regimes, and climate warming. These threats may interact to compound or accelerate their impact. WPBR is an introduced fungal disease that has a complex life cycle involving five different spore types and two different hosts. The fungus infects the needles of 5-needle pines (entering through the stomates) via spores produced on an alternate host—usually species of currants/gooseberries (*Ribes* sp.). The fungus spreads into the branches and often reaches the main trunk. Orange-colored "blisters" containing fungal spores erupt through the bark from infected tissue in spring/early summer (Figure 3). Spores released from these "blisters" are then transmitted via wind dispersal to the alternate host to perpetuate the cycle. WPBR girdles the infected branches and trunks, damaging or killing the tree. Even if not killed by WPBR, the disease tends to reduce seed cone production on the tree. WPBR is present and affecting whitebark pine populations everywhere in the species' range—except in the Great Basin. In Idaho, whitebark pine stands in the Panhandle and north-central part of the state have been the hardest hit regions.

MPB is a native bark beetle affecting multiple pine species and an important contributor to forest ecosystem dynamics. It is the most damaging insect pest for whitebark pine and typically targets mature, reproductive-aged trees. MPB outbreaks can cause extraordinary levels of tree mortality over large areas in only a few years (Figure 4). Beetle larvae feeding within the phloem (vascular tissue beneath the outer bark) girdle and kill the tree. Epidemic outbreaks of MPB have periodically occurred in the past to cause widespread death of whitebark pine. However, tree mortality during the most recent epidemic that began around the year 2000 and began to subside only a few years ago, appears to be unprecedented. Temperature directly influences all stages (egg, larva, pupa, adult) of MPB development and survival. Recent warming trends have benefited beetle expansion and establishment into cold, high elevation whitebark pine habitats that were less affected in the past. Warmer winter temperatures now allow over-winter survival of all MPB life stages. They also allow a 1-year rather than 2-year beetle life cycle to be sustained. Field data collected from >1400 US Forest Service Forest Inventory and Analysis plots found 51% of all standing whitebark pine trees dead in 2016, reflecting the combined effects of WBPR and MPB.

Wildfire has historically been an important disturbance factor maintaining whitebark pine across the landscape. However, many whitebark pine populations have been adversely impacted by a century of fire suppression policies. In the absence of periodic wildfires, successional changes may convert stands formerly dominated by whitebark pine to more shade-tolerant conifer species such as subalpine fir (*Abies lasiocarpa*) and Engelmann spruce (*Picea engelmannii*). Furthermore, fires create

Figure 2: Whitebark pine cones

sites suitable for seed caching by Clark's nutcrackers and improve conditions for whitebark pine establishment. Another aspect of altered fire regimes to consider is the likely future increase in frequency and severity of wildfires related to climate change. More loss of whitebark pine from severe wildfire may be especially detrimental due to largescale declines already incurred by the species from WPBR and MPB.

How climate change will directly or indirectly impact whitebark pine or any other species is complex. Whitebark pine may be especially vulnerable to a warming climate because it is adapted to cool, high elevation habitats. Habitat loss is expected throughout the species' range. Projected climate changes will likely exacerbate threats whitebark pine already faces such as MPB outbreaks and wildfire.

In light of its documented decline, vulnerability to widespread and ongoing threats, and the scope and imminency of these threats, whitebark pine was added to the U.S. Fish and Wildlife Service (USFWS) Candidate list for possible listing under the Endangered Species Act (ESA) in July 2011. A species status assessment document prepared by USFWS in October 2018 summarized the "current and future condition of whitebark pine to assess the species' overall viability now and into the future." This report formed the basis for evaluating whether or not to list whitebark pine under the ESA. In December 2020, the USFWS published a proposed rule to list whitebark pine as a Threatened species under the ESA. Finalization of the proposed rule is now pending.

Under the ESA, a determination that a species is Endangered or Threatened can be made based on any of five factors: (A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. In its evaluation, the USFWS determined WPBR to be the primary stressor affecting the status of whitebark pine (Factor C), but also recognizing the species is being impacted by MPB (Factor C), altered fire regimes (Factor E), and the effects of climate change (Factor E). In Canada, whitebark pine was listed as an endangered species in 2012 under that country's Species at Risk Act.

Federal listing highlights and magnifies the plight of whitebark pine, but conservation work on behalf of the species' has been ongoing for many years. Much of the research and application focus has been on breeding programs to develop WPBR resistant whitebark pine trees for planting in restoration projects. Identifying and collecting seed from whitebark pine trees that show signs of rust resistance are part of this process. Research continues to try and improve methods to protect potential rust-resistant seed source trees from MPB. Protecting and maintaining the genetic diversity of whitebark pine is a parallel component of the breeding goals. Basic information needs such as mapping the location of whitebark pine stands and assessing levels of WPBR and MPB are ongoing; as are monitoring efforts needed to assess the status of whitebark pine and evaluate the efficacy of restoration efforts. Silvicultural practices such as planting, daylighting, and prescribed burning are being employed

Figure 3: WPBR on a whitebark pine in Pioneer Mountains, Idaho

Figure 4: Whitebark pine stand decimated by MPB in White Cloud Mountain, Idaho

in numerous restoration projects. Two non-profit organizations, American Forests (www.americanforests.org) and the Whitebark Pine Ecosystem Foundation (whitebarkfound.org) are collaborating with various federal agencies and tribes across the western United States to develop a core-area restoration plan for whitebark pine. This strategic plan will identify selected areas within the United States for priority restoration of whitebark pine, allowing for the prioritization and focus of resources. It will take a coordinated, sustained effort like this to promote the recovery of whitebark pine. The ecological and cultural importance of whitebark pine in high elevation habitats can hardly be overstated. It will continue to take enormous effort and resources and the long-term dedication of many people to ensure your children and future generations have the opportunity to walk the mountains and marvel while in the shadow of whitebark pines. •

Vegetation Changes 40 Years Along Idaho's Salmon River

By Roger Rosentreter PhD, former Idaho Bureau of Land Management (BLM) botanist

Astract:

I observed and measured vegetation change in the flood zone and in the uplands of the Salmon River over a 40-year period (1980-2020). Most native plant species are still present today, but many are less frequent than they were in 1980. Noteworthy vegetation changes include an increase in exotic plant diversity and abundance—either they are new to the river corridor or they were rare or uncommon in 1980. Woody weeds are of a great concern since they are difficult to control. Reed canary grass, *Phalaris arundinacea*, also difficult to control, has converted some river sections to a new, non-native vegetation type. Reed canary grass has increased throughout the river corridor, but especially in the headwaters, including along the Middle Fork of the Salmon. This grass looks similar to several other grass species, so managers have not addressed this problem.

Introduction:

Observations of vegetation changes over the last 40 years can help guide management strategies for the future. Knowing the species that are displacing desirable plants and how they affect biodiversity, fisheries, and hydrology is critical to management. In particular, the rocky flood zone of the large Salmon River basin creates some novel habitats that have not been well described and could be disappearing as we stand by and watch.

The Salmon River is one of the longest undammed rivers in the lower 48 states (Rosentreter 1984). Much of the river and its surrounding habitat remain public lands in their natural state. The lower reaches of the Salmon River rely on seasonal flooding for moisture since this section of the river flows through a more xeric landscape than do the headwaters.

Salmon River topography includes many steep hills and narrow, often vertical, bedrock canyon walls. Due to the lack of dams on this river system, spring floods from snowmelt can increase flows up to 100x or more above winter low flows (Rosentreter 1984). In the lower reaches of the river, the mean high-water zone is about 5.5 meters, while the extreme flood zone is greater than 9 meters. Within this zone, bare rock, lichens, mosses, and a few hardy vascular plants form unique plant communities (Rosentreter 1984, 1992, 1994).

Moss community:

Aquatic mosses rely on bicarbonate CO_2, so they require natural aeration by rapids. Some streams and rivers, for example the Grand Canyon of the Colorado River, have such a high sediment load that the persistent abrasion of the rocks greatly limits or excludes aquatic lichens and mosses completely.

Rivers with moss species composition and zonation similar to that found along the Salmon River include North American northwestern rivers with natural flow regimes, and many of the streams that flow from the Andes in southern South America. Along the Bio Bio River in Chile, *Scouleria aquatica* is replaced by *S. patagonica* (see Rosentreter collections at Boise State University, Snake River Plain (SRP) herbarium).

Methods:

Intuitively controlled field surveys and site reviews at specific campsites and their adjacent hiking trails were conducted over the last 40 years by the author. At many of these sites, photo points were established. The author's herbarium collections were evaluated in consultation with other plant collectors. While these methods are more qualitative than quantitative, they remain helpful for a comparative time sequence. I also revisited sites where quantitative data were collected, but because the exact plot was not monumented, the resurvey information was only a relative change from the quantitative data taken at an earlier time (Rosentreter 1992, Bowker et al. 2004).

Results and Discussion:

The Salmon River boasts an especially large flood zone, since it is an undammed river system (Rosentreter 1984). Most of its headwaters and much of the shoreline of the lower reaches are protected as wilderness or open public lands. There is little human development along most of the river. The lower reaches contain plant communities that are declining or being displaced by non-native species.

The specifics on some of the Salmon River's declining native plant species and increasing non-natives are discussed below and in Tables 1 and 2. My observations on the causes of the decline in native vegetation changes are qualitative, but are hopefully beneficial for planning and land management purposes. Photographs were not as informative as anticipated. Forty years ago, some exotic species were only present in highly disturbed sites, but are now infrequent to common in many habitats, even

those with limited human disturbance. Riparian areas, by their very nature, are disclimax sites that experience periodic flooding, localized erosion, and landslides (Rosentreter 1992). Therefore, riparian corridors are prone to supporting disturbance-loving species. Examples of some of the exotic species of concern on the Salmon River are detailed below.

White mulberry trees appear to be native netleaf hackberry trees from a distance, but in fact, they are quite different. Netleaf hackberry trees support over a hundred native insects and its leaves are often covered with insect galls. White mulberry trees were introduced from China, in hopes of growing silkworms commercially, but the worms did not survive in our climate. All parts of the white mulberry are poisonous, except the ripe fruit, and no native insects are known to use white mulberry plants. Even the pollen of white mulberry is an irritant, and many states consider the tree noxious due in part to the pollen's allergenic properties. Domestic grazing animals and wildlife avoid white mulberry. In contrast, the native hackberry is sought after by wild turkeys, for the insects within the leaf galls. Many bird species benefit from all the insects it attracts, and bighorn sheep and deer will readily eat netleaf hackberry leaves.

White mulberry plants along the Salmon River rarely grow as trees, but more as thickets. White mulberry plants often become tangled woody thickets with the roots extending from low water up to and beyond the rivers high water mark, but only if connected to a water source. Periodic flows knock back the branches, creating this entangled, 10 square meter area of multi-stemmed growth. Such areas were previously considered open rock or lichen habitat. Male and female flowers are usually on separate trees. Although few trees along the Salmon River appear to be females (fruit is rarely found), there must be some females since the species continues to increase in number. There are no studies to evaluate what this has done to fishery resources or other native animal or plant species.

Exotic species that superficially look like common desirable native plants seem to lack the management priority and detection concern that other exotic species garner. For example, lead plant was first noted in 1990, near the U.S. Forest Service jetboat dock on the Oregon side of the Snake River. At that time, there was only a single plant. Lead plant is now common in many areas along the Snake River, though it is still uncommon on the Salmon. Lead plant is a tall shrub with oily leaves and fruit. It forms a dense monoculture along some lower elevation drainages in Idaho, such as the Payette and the Boise rivers. Lead plant is unpalatable, and therefore increases when herbivores (wildlife, including beaver, and domestic livestock) eat its more palatable native plant competitors.

Table 1. Native plant species that have declined along the Salmon River between 1980 and 2020.

Common name	Scientific name	Species status notes
Netleaf hackberry	*Celtis reticulata*	Aging plants, drought, and competition from weedy exotic plants in the early stages of development.
Mountain mahogany	*Cercocarpus ledifolius*	Wildfire, drought, increased grazing pressure, since there are fewer edible shrubs in the winter for wildlife and livestock.
Riverbank wildrye	*Elymus innovatus*	Once common, but now weedy species fill that niche, so it is rare and has declined or disappeared on other river systems, such as along the Payette River.
Low goosefoot	*Chenopodium chenopodioides* syn = *C. botryodes*	Not found in 2020. Palatable, it may have been eradicated by herbivores.
Torrent sedge	*Carex lenticularis*	Less common, some plants lost to abrasive forces and not recolonized due to changes in soil conditions and competition with invasive species. Only occurs below mean high water.
Mannagrass	*Glyceria striata*	Tall palatable grass that grows along the river's edges.

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INPS Provides Comments on Draft Environment Assessment for Kilgore Gold Exploration

The Caribou-Targhee National Forest of the U.S. Forest Service released the "Draft Environmental Assessment, Kilgore Gold Exploration" for public comment. The Idaho Native Plant Society reviewed this document related to gold mining exploration activities in Idaho's Centennial Mountain. INPS became concerned that the proposed activity will have an impact on the local population of whitebark pine (*Pinus albicaulis*). The U.S. Fish and Wildlife Service is recommending that whitebark pine be listed as a threatened species under the Endangered Species Act. They anticipate its listing to become official by December of this year. Here are the comments we prepared and sent by letter to the Caribou-Targhee National Forest. •

Idaho Native Plant Society

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Diane Wheeler, Geologist and Project Lead
Caribou-Targhee National Forest
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comments-intermtn-caribou-targhee@usda.gov

Reference: Draft Environmental Assessment, Kilgore Gold Exploration

Ms. Wheeler:

The Idaho Native Plant Society is a non-profit organization with over 400 members dedicated to promoting interest in native plants and plant communities and collecting and sharing information on all aspects of botany relative to Idaho native plants. We thank the U.S. Forest Service for the opportunity to comment on the draft Environmental Assessment (EA) for the Kilgore Gold Exploration Project. We have concerns related to whitebark pine (*Pinus albicaulis*).

As pointed out in the draft EA, the U.S. Fish and Wildlife Service (USFWS) is proposing to list whitebark pine as a threatened species under the Endangered Species Act. The draft EA clearly indicates there will be impacts to the whitebark pine population within the project footprint. Distinctly unique ecological units are found within the main project footprint that specifically support the whitebark pine population in this region. We do not see any indication that USFWS has reviewed or approved the impacts to whitebark pine described in the draft EA. We urge the Caribou-Targhee National Forest to coordinate with USFWS on the impacts of this exploration activity and make adjustments as necessary.

We recommend the Caribou-Targhee National Forest take a longer-term perspective - when evaluating impacts to whitebark pine - than is presently incorporated into the draft EA document. We assume the goal of this exploration activity will be the eventual exploitation of any usable resources discovered. The USFWS anticipates the listing on whitebark pine by December 2021. We also assume that the exploitation of the mineral resource will have a larger footprint and thereby a larger impact on whitebark pine than the exploration. The draft EA should consider the reduced likelihood that this larger impact to whitebark pine will be permitted given this species likely status as an ESA threatened species. We see no point in conducting the exploration if the eventual exploitation will not be approved.

If you have questions concerning these comments, please contact the chair of our Conservation Committee - Derek Antonelli, ds.ca.antonelli@gmail.com, (208) 691-1070.

Sincerely,

Stephen L. Love, President
Idaho Native Plant Society

Copy to: Idaho Fish and Wildlife Office (ifwo@fws.gov)

First Population of Western Moonwort Discovered in Idaho

Harpo Faust, a graduate student at the University of Idaho, discovered the first known Idaho population of western moonwort (*Botrychium hesperium*) while completing work on the flora of Idaho's Selkirk Mountains during the summer of 2020. She discovered the western moonwort in the prism of the old Bog Creek Road along the Canadian border. The western moonwort is a species that grows in open, gravelly soils that occur in disturbed areas such as avalanche chutes and forest fire remains. Old road prisms make a good substitute for this kind of habitat. Unfortunately, the U.S. Forest Service and the U.S. Customs and Border Protection Service have plans already in place to upgrade Bog Creek Road to provide better access for border patrol. If road construction occurs without taking the western moonwort into consideration, it is likely the entire population will be destroyed. As a member of the North Idaho Rare Plant Working Group, Harpo brought the situation to the attention of the Idaho Native Plant Society. INPS prepared and sent the following letter to the USFS and USCBP. •

Idaho Native Plant Society

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Ms. Kim Pierson, Deputy Forest Supervisor
and Project Lead
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Mr. Joseph Zidron
Real Estate and Environmental Branch Chief
Border Patrol and Air and Marine Program
Management Office
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Reference: Bog Creek Road Project

Ms. Pierson and Mr. Zidron:

The Idaho Native Plant Society is a non-profit organization with over 400 members dedicated to promoting interest in native plants and plant communities and collecting and sharing information on all aspects of botany relative to Idaho native plants. We thank the U.S. Forest Service and the U.S. Customs and Border Protection for your efforts to protect the environment of Idaho through the development the Environmental Impact Statement for the Bog Creek Road Project. We wish to point out a change in conditions since the EIS was completed. A population of western moonwort, *Botrychium hesperium*, was discovered in the Bog Creek Road prism during the summer of 2020. This is the first and only population of western moonwort discovered within the state of Idaho. We understand reopening this road is important for protecting the border of the United States. We believe that with reasonable care during the construction phase for Bog Creek Road the population of western moonwort can be preserved.

The western moonwort population on Bog Creek Road was discovered by a University of Idaho graduate student working to define the flora of the Selkirk Mountains in northern Idaho. Western moonwort is considered a sensitive plant by the U.S. Forest Service in the state of Montana. Having only recently been discovered in Idaho, western moonwort is, of course, not yet on the Idaho sensitive species list. The North Idaho Rare Plant Working Group has reviewed the status of the species and has recommended a rank of critically imperiled (S1) for the species. The Idaho Rare Plant Conference is expected formalize this rank when it next meets in 2022.

The western moonwort is a species that is found in gravelly soils of meadows, forest glades, avalanche chutes, vegetated talus/rock slopes, and old burns. Old road beds mimic these conditions and provide additional habitat for the species. The species can tolerate some disturbance and should be able to survive road construction if reasonable care is taken. For instance, blading this section of road with a grader would undoubtedly destroy the entire population, but brushing this section by hand would leave the majority of the population intact. With the low level of use proposed for the road, the population could survive indefinitely. We propose conducting a joint survey of the site to determine if hand brushing this section of the road can adequately prepare the road bed for its intended use. Other alternatives could be evaluated to find better options. At this same time the surrounding area could be surveyed for additional populations of western moonwort. Surveying during the weeks of July 19 or July 26 would be best for finding the moonworts.

If you have questions on this matter, please contact Derek Antonelli, ds.ca.antonelli@gmail.com, (208) 691-1070.

Sincerely,

Stephen L. Love, President
Idaho Native Plant Society

***Vegetation Changes**...Continued from Page 7*

Table 2. Non-native and nuisance native species that have increased along the Salmon River between 1980 and 2020.

Common name	Scientific name	Species status notes
Winged pigweed	*Cycloloma atriplicifolium* (Spreng.) J.M. Coult.	Recent introduction to the river from the midwest. A weed in sandy soil, only along the lower reaches.
Witchgrass	*Panicum* spp.	Warm season grass, increases due to climatic warming.
Lead plant	*Amorpha fruticosa*	Branching shrub, low palatability, and abundant fruit, increasing mostly on controlled or dammed sections of the Snake River with potential to move up the Salmon River.
White mulberry	*Morus alba* Most of the plants are a hybrid of *Morus alba* x *rubus*. Most of the plants appear to not produce fruit; possibly male or sterile hybrids.	Larger trees and more abundant, both below and above high water (4x increase). This unpalatable plant is moving into a niche few other plants can survive due to its extensive root system. This eliminates the bare rocky zone that is characteristic of the lower Salmon river.
Mahaled plum	*Prunus mahaleb*	Increasing along the highway in the more accessible areas near Lucille, Idaho.
Mediterranean sage	*Salvia aethiopis*	This species has greatly increased and is now a common "tumble weed" found within the canyon. Seed and plants are deposited by wind.
Poison ivy	*Toxicodendron rydbergii*	Increases perhaps due to climatic warming, only a slight increase. It is native but unpalatable to most animals.
Reed canary grass	*Phalaris arundinacea*	Invasive native/exotic perennial grass often introduced in hay. Once established, it will exclude all other plants, including willows and other desirable species. Uncommon in the 1980s, it has increased in the upper watershed in particular, due to the transport of domestic hay and low palatability (palatability is reduced once it heads out).
Horseweed	*Conyza canadensis*	More common.
Spotted knapweed	*Centaurea stoebe* L. ssp. *micranthos* (Gugler) Hayek, syn = *C. maculosa*	More widespread than before, seeds dispersed by wind. Low palatability.
Bouncing Bet	*Saponaria officinalis*	Increasing non-palatable soap plant.

Acknowledgements:

I would like to thank the many river companions who over the years have had to tolerate my plant adventures and collecting. I would like to thank my friend and colleague Joey Milan for several insect biocontrol monitoring trips down the Salmon River, and I also thank Ann DeBolt and Emma Casselman for comments on this manuscript.

Literature Cited:

Bowker, M.A., J. Belnap, R. Rosentreter and B. Graham. 2004. Wildfire-resistant biological soil crusts and fire-induced loss of stability in Palouse prairies, USA. Applied Soil Ecology. 26:41-52.

Rosentreter, R. 1984. The zonation of mosses and lichens along the Salmon River in Idaho. Northwest Science 58:108-117.

Rosentreter, R. 1992. Highwater indicators on Idaho waterways. Pages 18-24 In: Clary, W.P., McArthur, E.D., Bedunah, D., Wambolt, C.L., comps. Proceedings of the Symposium: Ecology and management of riparian shrub communities. Gen. Tech. Report INT-289, Ogden, UT.

Rosentreter, R. 1994. A chemical test for *Verrucaria*. Evansia 11(2):78. •

***Chapter News**...Continued from Page 3*

PAHOVE CHAPTER (Continued)

May 11: Derek Antonelli "Conifers of Idaho"

Annual Native Plant Sale: The Plant Sale is scheduled for April 23-25. Orders will be placed online and picked up at MK Nature Center. Details will be announced via email and on the Pahove Chapter page of the INPS website.

SAWABI CHAPTER

When: Meetings are held on the first Monday night of October, November, January, February, March and May. Programs begin at 7:00 pm and refreshments are available afterwards. Each meeting begins with a short presentation on the plant family of the month.

Where: The Middle Fork Room of the Pond Student Union Building on the lower Idaho State Univ. campus.

Contact: Geoff Hogander, ghogande@yahoo.com.

Upcoming Events

Annual Chapter Meeting: We are all looking forward to having in-person meetings and plant walks again. Hopefully the Annual Chapter Meeting in April where we plan our weekly outings can be held face to face. Notices with details will be emailed to members as the time approaches.

Statewide Annual Meeting: June 17–22. Things are progressing well since most of the groundwork was laid last year before we had to cancel. If you have an item to donate to the ERIG silent auction please let us know on your registration form. We already have two folks registered and are looking forward to seeing you all in Pocatello.

UPPER SNAKE CHAPTER

Contact: Kristin Kaser, kaser.kristin@gmail.com

WHITE PINE CHAPTER

When: Meetings are held once a month at 7:00 pm except during the summer. Field trips can 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 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.

Past Events

February 17: Whitepine hosted a very informative and beautiful presentation via Zoom. Presenter: Douglas Shinneman, Research Fire Ecologist, U.S. Geological Survey on "The Dynamic Influence of Climate and Fire on Aspen Forests of the Western U.S." Dr. Shinneman is very knowledgeable about the habitat, species and needs of Aspen to thrive in a changing landscape.

Upcoming events

Due to COVID-19, we are doing all of our presentations online. There is a downside in not being able to gather yet in person. The upside is being able to welcome attendees from around the state and region via the online format. Other presentations for March and April are currently in the planning stages.

Annual Native Plant Sale: Week of May 11 through 17. Due to anticipation of continued restrictions due to COVID-19 and the continued focus on protecting the health of our community, we are planning an online sale. Information on the Plant Sale and upcoming presentations may be obtained by watching our website: www.whitepineinps.org and Facebook page, IdahoNativePlantSocietyWhitePineChapter. Another option is to send us an email: whitepine.chapter@gmail.com to request being placed on the mailing list.

WOOD RIVER CHAPTER

When: Meetings are held on weekday evenings and wildflower walks generally on Saturdays. Times are announced in local news outlets and also in the chapter newsletter. Events are also posted on the Wood River Chapter page of the INPS website.

Where: Each meeting's location is noted in the announcement.

Contact: Subscribe to the newsletter by emailing Lisa Horton at 1gypsy2016@gmail.com. Address questions about programs to Kristin Fletcher at naturewalker7@gmail.com. •

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