Sightlines

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Newsletter of the Selkirk Conservation Alliance

FEATURES

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Sightlines is the newsletter of the **Selkirk Conservation Alliance (SCA)**, a non-profit corporation providing environmental oversight and public information for the Selkirk Mountains.

The Story of Bismark Meadows

BY ROSEMARY YOCUM, SCA FIDUCIARY AGENT

Visitors and locals alike can enjoy the view of Bismark Meadows while traveling on Highway 57 at Priest Lake. This 1100-acre complex of meadows and wetlands sits on the west side of the highway, and is visible between the 34- and 35-mile markers. Lots of folks noticed that around the year 2000 what had previously been only grasslands started sprouting ponds, families of ducklings and other waterfowl, and a variety of native plants and flowers amidst the grasses. Though it has always been beautiful to look at, suddenly it became a lot more interesting. What brought this change about?

Enter Joe Hawley to shed some light on the history of Bismark Meadows. Joe, a former US Forest Service employee for 32 years, has lived at the north end of the meadows for 55 years. When he first moved there, the area was in its natural state of meadows and wetlands. After private landowners started farming the area, "it got to where the government would pay you to ditch it," he said.

The Natural Resources Conservation Service (NRCS), a branch of the US Department of Agriculture, offered Agricultural Land Easement programs to landowners who wanted to maintain or enhance their land in a way beneficial to agriculture.

After the farmers installed ditches to drain the meadows, the wetlands dried up, the meadows were farmed for their tall grasses, and landowners ran livestock for many years. "Back when I ran cattle and sheep on the meadows," said Hawley, "I'd see lots of grizzlies there."

The NRCS later returned to the scene with their Wetlands Reserve Easements component where they help to restore, protect and enhance enrolled wetlands. Most of the Bismark Meadows' landowners took part in the program in the late 1990s, removing ditches and allowing the land to return to its former state of low-lying meadows and wetlands.

The Vital Ground Foundation, based in Missoula, Montana, is a land trust that conserves and connects habitat for grizzly bears and other wildlife. It also teams up with communities to prevent conflicts between bears and people. "Bismark Meadows is a resource-rich area that provides benefits to fish, wildlife and plants," says Ryan Lutey, Vital Ground executive director. "It's a bit of a landscape

A small part of Bismark Meadows wetlands, the 1100-acre complex of meadows and wetlands off Highway 57.

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For more in-depth articles, photographs and links, go to our website **www.scawild.org**

PRESIDENT'S MESSAGE

SCA Mission: Engage the public in southern Selkirk resource and land management issues through cooperation, scientific inquiry, education and economic diversity.

SCA Vision: The Selkirk Conservation Alliance is the leading and faithful advocate to all who live, love and benefit from Priest Lake and its surroundings. We are committed to understanding, supporting and protecting the environment and all living beings found here. We are dedicated to the educational programs and scientific research that support and maintain this rare and exceptional environment for future generations.

Welcome to the spring edition of *Sightlines*! I hope this finds you in good spirits and anxious to get out and enjoy everything which the Priest River Basin has to offer.

I would like to thank each Selkirk Conservation Alliance (SCA) member, donor and contributor, staff and board member for your ongoing and continued support of this organization.

Without you, we have nothing.

No voice or credibility for clean water, clean air or for protecting wildlife in this unique, high quality ecosystem. With your support, we have a seat at the table, a voice to "engage the public in southern Selkirk resource and land management issue through cooperation, scientific inquiry, education and economic diversity." Those are the words in our mission statement which we strive to achieve every day.

As we dive deeper in to 2019, we are appreciative of the resources available and the tools we have to do our work in a professional and efficient manner. At the same time, the waters are somewhat murky in terms of our ability to address new and emerging issues as they come in the door.

For example, engaging in forest-related issues with the USFS, IDL, private landowners and others to protect the ecological integrity of the forest and to maintain clean water standards in our watersheds is a time-consuming task. At present, SCA has limited finances to track and respond to critical forest-related work and issues. Why is this?

The short answer is that we rely primarily on membership dues, donations and grant funds to do our work. At present, there is a shortfall of donations which precludes SCA from hiring an executive director or taking on anything more that the highest priority, significant issues. This is neither whining nor a complaint, but it is the financial reality under which SCA must operate. So, if you or others are inclined to support SCA with a donation, we will be very appreciative and accountable for the funding and our expenditures.

Last, I would like to thank everyone who contributed to this spring edition of *Sightlines*. I encourage you to provide input and feedback (a postcard will do!) and to check out our updated SCA web page (scawild.org/staff/) - including access to copies of *Sightlines* newsletters going back 30+ years! – and our SCA Facebook Page www.facebook.com/SCAWILD/.

Thank you!
Jim Bellatty, *SCA Board President*
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SCA Welcomes New Office Manager, Robin Maloney

BY ROSEMARY YOCUM, SCA FIDUCIARY AGENT

SCA would like to welcome our new Office Manager Robin Maloney. Robin grew up in Clark Fork and currently resides in Priest River. She has worked for and with CPAs, had a bookkeeping business of her own, and was the office manager and full charge bookkeeper for Homestake Construction and Design, Inc. and Priest River Glass, Inc. She has recently retired from the corporate world and is looking forward to having a more community-based focus.

Please feel free to introduce yourself and say hello to Robin when you call 208-448-1110 or visit the SCA Priest River office!

Update on the Newport Silicon Smelter Proposal

BY TRACY MORGAN, SCA VOLUNTEER

As you may recall from the fall 2018 edition of Sightlines, SCA issued a formal opposition to the Newport silicon smelter proposal. Since that time, there are a number of groups working on these issues and there are challenges to the placement of this proposed facility based on environmental, legal, legislative, and moral grounds. Our conservation partners, the Kalispel Tribe of Indians, continue their leadership role in opposing the placement of a massive greenhouse gas producing, coal burning facility in a rural small town.

We have been attending Watershed Resource Inventory Area 55 (WRIA55) meetings about the delineation and usage of exempt water allocations to ensure that this watershed's well owners are protected. The site is located on the Little Spokane Watershed headwaters and is upstream of many delicate and critically designated waters and wetlands not to mention the associated aquifers.

We are contacting both the Department of Ecology and the Northwest Power Planning and Conservation agency to inform them and assure treaties under the BPA operations are met with regard to fisheries. We continue to monitor Newport's and Pend Oreille County's Comprehensive Plan updates: to fight the county's issuance of a blanket re-designation of public lands to other types. That county proposes to change 62% of its zoning in this document. The amendment would automatically designate the smelter site appropriate for industrial uses; within just feet of Newport's Urban Growth Area.

Newports new municipal wells are also adjacent to the proposed site; with the well recharge zones directly under the proposed expanded rail loop. We have cautioned the City of Newport of the potential for increased arsenic and mercury infiltration from coal dust into ground waters, and the city water system, at that site.

Legal proceedings over the validity of the land transaction giving HiTest ownership of the site are now under appeal in Spokane County court. Gonzaga University Environmental Law clinic is investigating complaints in several areas of law. Rights of Nature workshops are upcoming and open to the public. This will be yet another route to challenge the suitability of this plant so close to wild and natural areas not to mention schools, nursing homes, the downtown business district… the impact on the current tourist industry will also be immeasurable.

To site this facility up wind of one of the rarest rain forest types in the world, the Selkirk and Purcell ecosystems, with dozens of protected species and indescribable beauty, is also an ethical question. Given the countless more suitable locations this plant could be built, where there is least harm, why here?

2019 Budget SCA

BY JON QUINN-HURST, SCA BOARD MEMBER

There have been several changes that have necessitated adaptations to the budget of the organization. The Board of Directors developed a working budget in December 2018 for the 2019 fiscal year to address the changes. The most challenging and important challenges reflected in the budget:

- Decreased membership over the past five years.
- Decreased member donations and general donations.
- Maintenance of the grants for water testing, invasive aquatic vegetation, and GIS projects.
- The retirement of the Executive Director in the fall of 2018.

The Finance Committee discussed pursuing grant opportunities and funding. Although everyone agrees that grants can be a very good source of funding, they also come with restrictions, deliverables and expectations. At this point, we have two grant applications in the pipeline (Innovia Foundation and the Charlotte Martin Foundation) and the Committee thought it would be good to know the outcome of those applications since we currently have limited ability or capacity to manage or administer these funds/projects.

Many grant criteria present a challenge for SCA because it precludes SCA from spending a dime on any overhead expenses. Some grants are very specific, ie grants cannot be used for: funding general administrative expenses, such as salaries, stipends, wages, honorariums, rent, and overhead expense.

The Finance Committee and the entire Board of Directors have chosen to focus first on increasing membership income and donations to fund the Executive Director position. We are reaching out to people who have been past members to renew, and contacting people who have not been members and who have an interest in the ecosystem of the Selkirk Basin to join, such as Priest Lake and Priest River property owners. We have begun an outreach effort to build bridges with other organizations in the Selkirk Basin, ie: a recent presentation to the Priest Lake Chamber of Commerce and developing connections with other groups and businesses in the area to increase awareness of the mission of the Selkirk Conservation Alliance.

In summary, we have a tight balanced budget that we are closely monitoring, and our goal is to continue to fund the research, education and advocacy work of the Selkirk Conservation Alliance. We rely on member support and donations, so please keep SCA in mind as we continue to strive to Keep the Wild in the Selkirk Ecosystem.

SCA Files an Objection Letter on the USFS Bog Creek Road Project Proposal

BY JAMES LEA, CHAIRMAN OF THE ISSUES COMMITTEE, SCA BOARD MEMBER

On February 25, 2019, the SCA filed an Objection Letter with the United States Forest Service (USFS) and the Customs and Border Protection (CBP) on their final environmental impact statement and decision to proceed with repairing and maintaining a 5.6-mile section of the existing Bog Creek Road located within two miles of the Canadian border in the Selkirk Mountains in Boundary County, Idaho.

Bog Creek Road is currently designated as a seasonally restricted road (motorized use is permitted between April 1 and November 15 only for administrative purposes such as Forest Service, CBP, and law enforcement); after road repair activities, the road would change to an administrative open designation (as-needed administrative motorized access). Under the administrative open road designation, Bog Creek Road would be open to as-needed administrative motorized access but not open to the public for motorized travel.

Repair and maintenance would consist of grading and resurfacing areas of the road that have been heavily eroded by surface water flows, filling potholes, and removing protruding boulders. Repair would also include installation of six new culverts and replacement of six of the existing 67 corrugated metal pipe culverts located along the length of the roadway because they have partially rusted through, otherwise exceeded their usable life, or do not meet current design standards for width and capacity. The most intensive repair would occur at Spread Creek, where a culvert failure and road washout have made the road completely impassable.

Following is an excerpt from the SCA Objection letter which articulates our position on this important issue:

The Selkirk Conservation Alliance (SCA) has been an advocate for the environment of the Priest Lake/River watershed and Southern Selkirk Mountains for over 30 years. Previously SCA joined voices with a variety of organizations to express our concerns about this project. We are deeply concerned that the newly proposed alternative 3 will have a deleterious effect on grizzly bear and other cold climate species survival. We object to the reopening of the Bog Creek Road and to the redesignation of both Bog Creek and Blue Joe Creek roads to Administrative Open. We propose an alternative, to be called alternative 1a, which will allow CBP to fulfill its responsibilities for border security, cause minimal environmental disturbance, and yet be dramatically less expensive than the proposed alternative.

In their letter of Feb 6, 2013, CBP outlines the difficulty they have in fulfilling their mission in a timely fashion if an incident occurs in the eastern range of their jurisdiction. The Metaline Falls office is responsible for the border from the Stevens/Pend Oreille county line to a point 36 lineal miles east along the border. That eastern point is only 6 lineal miles from the Port Hill border crossing. Bog Creek road previously provided access from the Priest River to Kootenai River drainages but has been impassable for several years. Therefore when an incident occurs in the Kootenai watershed, agents from Metaline Falls must perform a near circumnavigation of the Southern Selkirk Mountains, a trip that requires many hours. Ironically this route requires Metaline Falls agents to pass within 250 yards of the headquarters of the Bonners Ferry CBP.

The USFS tends to parcel their forest units based upon clear cut physiographic features such as mountain ranges and drainages. In contrast the CBP jurisdictional regions appear to be arbitrary. The mandate that the Metaline Falls agents patrol the Kootenai drainage would appear to have been onerous. To reach the watershed divide between Priest and Kootenai River required CBP agents to drive 45 miles of mountainous gravel road compared to 31 miles for agents from Bonners Ferry. For the Metaline agents to reach the eastern limit of their jurisdiction would have required 72 miles of gravel road transit in contrast to 4 miles for agents from Bonners. This simple exercise in cartography demonstrates that even before the Bog Creek Road wash out, it would have been more efficient for the Bonners Ferry CBP to respond to incidents in the Kootenai River drainage.

We, therefore, respectfully propose that the Spokane CBP shift enforcement of the Kootenai River watershed to the Bonners Ferry office. With this simple administrative action the Bog Creek Road would not be necessary to provide transit from the Priest to Kootenai watersheds. In addition road closure gymnastics would not be necessary to preserve the existing bear management units. The Spread Creek wash out would not need to be repaired for motorized vehicles, making the repair much less expensive. In fact, not repairing the wash out is highly desirable since it will reduce illegal motorized entry, which inevitably will occur if the road is rebuilt (please see comment letter of Harry Jageman, retired USFS biologist, from June 12, 2018). If the road is not rebuilt, no further action would need to be taken elsewhere.

SCA feels this solution is simple and economical yet allows CBP to fulfill its duties. It also will result in a minimum of disturbance to our grizzly bears and other species. If the goal of the CBP is to prevent smuggling and human trafficking, then the popular perception of a roadless grizzly wilderness will prove to be a greater deterrent to malefactors than the occasional border patrolman in a truck.

For those who want more details on this proposed project, you are encouraged to review the Final Environmental Impact Statement for the Bog Creek Road Project listed on the facing page:

The Bear Creek Wetland

BY CURTIS WICKRE, SCA BOARD MEMBER

Bear Creek meanders quietly through 312 acres of wetland emptying into the large Bear Creek Bay on the East side of Priest Lake south of the narrows.

Although well known to locals who frequent the area in kayaks and canoes, it seems largely ignored by others. The wetlands are crossed by multiple shallow channels which make lush habitat for many wildlife species. Regular visitors vie for the biggest stories of animal sightings. Moose are commonly seen foraging in the creek. A family of river otters called one of the channels home last year.

The whole wetland is a nesting ground for geese and other water fowl. Blue heron are occasional visitors. Turtles are frequently seen basking on scattered logs scampering into the water on arrival of a noisy kayaker. Bald eagles and osprey nest in the region enjoying the good fishing and hunting environment.

The surrounding steep banks north of Bear Creek provide nesting ground for noisy kingfishers. A cougar den has been noted higher up in the drainage. There are rumors of bear sightings, as the name of the drainage suggests, although I cannot confirm that.

Historically, the area was occupied by the Lone Star Ranch in the Nell Shipman era. A large boulder Northeast of the wetland is still marked with a very faded lone star mark. South of the creek, the shoreline has been the historic home of old, now essentially decayed cabins used by wayfarers, prior laborers and replete with checkered historic usage. The Beach front is now frequented by transient boat campers. More recently, rumors of development plans have raised concerns among those who have experienced this unique and fragile ecosystem.

Bear Creek Wetland shared ownership includes private land owners, the Idaho Department of lands and a logging company. 312 acres of the land is included in the Federal U.S. Fish and Wildlife Service National Wetlands Inventory as Palustrine emergent and/or forested seasonally flooded wetland. The land to the South of the creek extends to Cape Horn and is accessible by a rudimentary power line access Jeep trail. Platted and developed lots lie just North of Cape Horn. The Upper portion of this land has been recently logged and the creek transgressed by a bridge for logging access. Platting of other lots along the southern part of the Bay are at the rumor stage and not recorded by Bonner county at this point or acknowledged by the Idaho Department of Lands. The portion of the bay South of the creek lies adjacent to the wetlands, is threatened by development and is very ecologically fragile.

Off-road vehicles have been using part of the fragile ecosystem as well, tearing paths through this otherwise wild habitat. Most visitors however, appear respectful of this Priest Lake jewel. A rebuilt dock replete with newly driven pilings and tethered to a very old large cedar tree recently appeared adjacent to the wetland. This same 600 foot of shoreline and 158 acres of associated wetland was listed for sale (unsuccessfully) eight years ago. Both of these events provide a subtle reminder of the risk of human encroachment to this area.

Wetlands, while crucial to the health of the pristine Priest Lake environment, are not immune to developers. The recent lawsuit surrounding the sale and development of the Warren Beach wetland South of Coolin was settled in favor of the developer and is another reminder of the potential impact of development. In the case of Warren Beach, legal banter seemed to overshadow the importance of maintaining and protecting the Priest Lake's wetlands.

Both the 230 acres of wetlands surrounding Warren Beach and the 312 acres surrounding Bear Creek are listed in the Federal National Wetlands Inventory. While the federal listing provides acknowledgement of the ecological importance of the wetlands, the outcome of development is relinquished to local jurisdiction. We can only hope that development will not destroy the beautiful and fragile wildlife habitat of the Bear Creek wetland as is being threatened at Warren Beach.

PROJECT PROPOSAL OBJECTION, CONTINUED FROM LEFT

www.cbp.gov/sites/default/files/assets/documents/2019-Feb/Bog%20Creek%20Road%20Project%20FEIS_508_Feb%202019.pdf

In addition to the above-mentioned Objection Letter, SCA also co-signed an Objection Letter with the Center for Biological Diversity(www.biologicaldiversity.org/news/press_releases/2019/selkirk-road-02-15-2019.php).

After the 45-day objection period ends, the USFS/CBP will respond in writing to address any objections and then issue a Final Record of Decision.

Green Water: The Seaweed and Algae in our Lake

BY JAMES LEA, SCA BOARD MEMBER

I have only had my cabin on Kalispell Bay for 32 years, but even in that time I have noticed a significant increase in aquatic vegetation (seaweeds and algae) on the lake bed and docks. Years ago, I recall a small amount of algae growing on the lake bed at the end of summer, but now seaweed is everywhere and this last summer we had a horrible algae bloom. I have talked to several old timers who grew up spending summers at the lake. From north of the narrows to Outlet Bay the story is the same. Spanning seven decades no one recalls seeing algae growing on the rocks and docks at that time. Something has happened.

My neighbors have been concerned as well. One of my neighbor's adult daughters no longer swims in the lake because she thinks it is polluted. The water is not really polluted based on the usual water quality measurements, but it sure looks nasty at times. This is not just an aesthetic concern, it is an economic one. The University of Idaho published a study a few years ago looking at the values of lakeshore properties depending upon whether there was evidence of significant aquatic vegetation growing along the nearshore. For those properties choked with seaweed, there was an estimated reduction in property value of 13%.

Priest Lake is considered an oligotrophic lake. This means that it is relatively poor in nutrients. That is a good thing for us because the absence of nutrients means that our water is clean, clear, pure and aesthetically beautiful. This is one of the main attributes that makes Priest Lake a desirable destination for tourists and locals alike. Typically, in oligotrophic lakes, phosphorus is the limiting factor for aquatic vegetation growth. Phosphorus is required for growth and reproduction. If you don't have phosphorus in the lake, you don't have seaweed. There are natural sources of P including weathered bedrock and rotting vegetation. There are also human sources including soaps, fertilizer and human/animal waste.

In the summer of 2017 my neighbor Jan Boll, professor of environmental engineering at WSU, and I performed a preliminary study measuring the accumulation of algae over the course of the summer along Kalispell Bay. Using a methodology borrowed from IDEQ we set out pavers with a Styrofoam face along the bay. Periodically we cut out samples of the Styrofoam laden with its "crop" of algae for analysis of chlorophyll. To our surprise we found that the areas that had the greatest growth of algae were associated with groundwater outflow.

There was no surprise that we have a lot of groundwater flowing beneath our feet. A U of I study from 1993 demonstrated that there is a sizeable aquifer on the west side of the lake. One of the major outflows is Kalispell Bay. What surprised us is that the groundwater was carrying significant quantities of P. Based on this preliminary study, Dr Boll was able to secure a grant from Agouron Foundation for a graduate student to study this problem for the next two years. In another year we should have a better understanding of this problem.

In the meantime, there are choices we all can do to limit the amount of P that the lake receives. Since soaps contain P, make sure that you do not wash your boat, your dog or yourselves in the lake. When you wash your boat, do it at home or far away from the lake shore. If you have a boat with a galley, capture your soapy dishwater in a plastic tub and flush it down the head. (The soap actually helps lubricate the pump). For campers, use soap that is phosphorus free. You might have a hard time finding this soap at the local supermarket, but you can get it in two days from Amazon.

Finally, we come to the subject of fertilizing your grass. Established turf needs very little phosphorus. Fertilizers are labeled based on their percentage content of the three basic macronutrients. So a fertilizer labeled as 27-3-10 will have 27% nitrogen, 3% phosphorus and 10% potassium. This is an appropriate maintenance fertilizer for grasses. This is in contrast to the usual fertilizer available at the hardware store which is often a "general purpose fertilizer", something like 10-10-10. The grass will not take up that additional 7% of P, the rest will find its way into the soil and then into the lake where it will fertilize your crop of algae and milfoil.

Better yet use phosphate free fertilizer such as 27-0-10. It's the nitrogen that makes your grass green, not the phosphorus. Some municipalities in the US even ban P containing fertilizers because of the concerns of P getting into the water. That might be something for the Bonner County commissioners to consider. To their credit they have already banned phosphorus containing laundry soap and are the only county in Idaho to have done so.

Even better, replace your Kentucky bluegrass with a fescue native to Idaho. These grasses are drought tolerant, do not require mowing and need no fertilizer. You won't find these grass seeds everywhere. I was able to get the appropriate grass seed for my lawn at Pineview Horticultural Services in Hayden.

Purdue University recommends:

- Do not apply unnecessary fertilizer to the turf.
- Never apply fertilizer to drought-stressed, dormant or frozen turf since it may run off.
- Return lawn clippings back to the turf during mowing to recycle nutrients.
- Maintain a vegetative buffer strip of at least 10 feet around surface water and do not fertilize this area ever.
- Pick up pet waste promptly. Pet and animal waste contain high amounts of phosphorus as well as harmful bacteria.

The Last Selkirk Mountain Caribou?

BY CHERYL MOODY, FORMER SCA EXECUTIVE DIRECTOR

A year ago we noted that members of the international recovery team were planning to capture and collar the last members of our herd. Unfortunately, when they tracked the one remaining collar, only three cows (from the previous herd of 11) were located. These cows were later determined to be unbred, indicating that they had been separated from the last bull the prior fall. This means eight of the herd were either killed (bodies not yet located) or separated from those with active collars. Meanwhile, the Purcell herd dropped from 16 in 2017 to four (three bulls and one cow).

It was determined by B.C. wildlife officials that all the remaining caribou would be captured and transported to the existing maternal pen in Revelstoke, B.C. last summer; but each of the three Selkirk cows were collared in the interim. In August one of the collars went offline, and it was determined one more of our herd of three had been lost to a mountain lion.

B.C. wildlife staff contacted the SCA last fall to see if we would donate our lichen collections to the Revelstoke pen, to help transition our cows to the pelleted zoo feed upon their arrival. They arranged to pick up the lichen last October, just before the cows were captured.

This winter, a lone cow and another bull were photographed by multiple people in NE Montana. When investigators went to capture the Purcell herd, they had issues with the bulls, and when they returned later to try again they also found one bull with a calf in tow. As of March, 2019, all of these animals have been captured and also transported to the captive rearing program in Revelstoke.

So are all the caribou gone from the Selkirks and Purcells? There is really no way of knowing. Even if the two found in NE Montana were included in the 2017 census data, I don't believe the biologists know which herd they had separated from, nor where the other 6-8 from the Selkirk herd or up to 12 from the Purcell herd have gone (i.e. no carcasses have been found). Biologists from both sides of the borders used aerial census techniques to look for more caribou tracks, and failed to find any – but they had also failed to find the individuals in NE Montana, so it seems that anything is possible.

To date, the USFS has maintained they will continue to protect the critical habitat as protected in the current Forest Management Plan. Exceptions may be made in the current travel planning process that is underway, but a judge will ultimately have to lift the current injunction, which will stay in place until a travel plan is finalized and approved by the USFWS.

That said, there continues to be no enforcement of travel in the "purple snow" areas (those off limits to motorized vehicles during critical winter months), and we know that violations continue to occur (people frequently post pictures of their snow machines in closed areas on social media channels, etc.).

That said, finding and protecting any remaining caribou is a priority!

So, keep your eyes open for caribou when recreating in the Selkirks, and with any luck our missing herd members will ultimately be found alive, and then perhaps individuals from the captive breeding project can be used to supplement any remaining herds in the Selkirks and/or Purcells.

Lower Priest River Water Temp. Study: Researcher Q&A

BY JONATHAN QUINN-HURST, SCA BOARD MEMBER

In the summer of 2018 the United States Geological Survey (USGS) and Kalispel Tribe of Indians collaborated to conduct a very extensive study of the Lower Priest River from the outlet dam at Priest Lake to the confluence with the Pend Oreille River. As a landowner who lives on a section of the lower Priest River, I was very interested in the project and provided access to the researchers. I was also able to participate in the one-day study of the entire river in August 2018 as a member of a three person team that floated a nine mile section of the river with a temperature data logger in tow on the bottom of the river. Thanks to my teammates John Wallingford (Priest Lake cabin owner) and Allan Hagelthorn (my neighbor on the river) we managed to negotiate 8 Mile Rapids without losing the data logger in the rocks!

I recently contacted one of the lead researchers on the project, Francine Mejia, Research Ecologist with the USGS, to ask questions about the progress of the study.

What is the title of the temperature study on Priest River?
Priest River Cold-Water Refuge Protection and Restoration Framework.

What are the primary research questions for the study?
We are trying to describe how temperature varies in the lower Priest River over space and time.

What agencies/groups were involved in the temp study?
U.S. Geological Survey, Kalispel Tribe of Indians Natural Resources Depart*ment, Trout Unlimited, and the Idaho* Master Naturalists.

What kind of data did you collect?
We set out temperature loggers in the river, on the bottom, every 2 km – 1.2 miles – from near the outlet dam to just about the point where the Priest River joins the Pend Oreille River. These temperature loggers collected readings every hour from June 26 to September 3, 2018. We chose to measure this period of time to see how river temperatures fluctuated during the summer months.

We also measured temperature of the entire river on one day from the Priest River outlet dam to where it meets up with the Pend Oreille River. We were able to do this with the help of 10 teams of volunteer scientists.

The author successfully navigates 8 Mile Rapids. (photo courtesy of John Wallingford)

The teams were outfitted with a Global Positioning System – GPS and floated the river while towing a temperature logger– along the bottom behind them. The logger collected temperature readings every 10 seconds and GPS coordinates every one second.

In general, how did you and your research partners manage to conduct a study of a 46 mile river in one day?
We partnered with Trout Unlimited and the Idaho Master Naturalists who helped us connect with the local community. We were able to recruit over 30 volunteers who not only drifted the river, but helped shuttle people around by car. We also have to thank a few private landowners who graciously provided us access to their land during both the planning stages and on the day of the actual survey.

What are the top three major findings of the temperature study?
We're still processing the data, so I can't yet tell you what the major findings are right now. What I can tell you is the preliminary data is showing that the river cools as you travel downstream. It also shows that there is a lot of temperature variation in the river. We think some of this variation may be due to mixing of water from streams and smaller rivers that feed into the Priest River as well as springs and seeps.

There is a perception that the temperature study of the Priest River is somehow connected to the Priest River Cold Water Bypass feasibility study. Is the temp study connected to the bypass study?
No. This study is not connected to the bypass study. We've been asked by the Kalispel Tribe of Indians to help them develop a plan to restore habitat for whitefish and trout. The Priest River is part of the Tribe's aboriginal lands and these fish were once a major food source. These fish rely on cold-water refuges for survival, thus our focus on river temperatures.

Where can people go on the internet to find more information about the Priest River Temperature study?
We will be posting the data sometime mid to late 2019 in the USGS science base catalog. Also, we will be publishing these results in a peer-reviewed journal.

BISMARK,
CONTINUED FROM PAGE 1

anomaly where a combination of topographic and hydrologic features disrupts the regular pattern of the surrounding mountains. Kalispell and Reeder Creeks filter through the meadows, which help store water and protect the water quality of Priest Lake and the drainage downstream, and several far-ranging wildlife species meet important seasonal habitat needs at this location."

According to VitalGround.org, the website for Vital Ground Foundation, "A recovering population of 50 to 60 grizzly bears traverse the Selkirks and rely on Bismark Meadows for spring habitat, finding the year's first green plants and snow-free forage there. West slope cutthroat trout migrate up the streams that feed the wetlands. Six species of aquatic plants designated as threatened or endangered shoot up from Bismark's marshy soils."

"These meadows are great for spring and summer grazing for grizzlies and wildlife," said Hawley. "There's quicksand and some sinkholes in the meadows too," he added. He knows where they are, so stays well away from these areas.

The Selkirk Conservation Alliance (SCA), our local conservation group based in Priest River, applauds Vital Ground's efforts in protecting Bismark Meadows. SCA's mission is to "Engage the public in southern Selkirk resource and land management issues through cooperation, scientific inquiry, education and economic diversity." Jim Bellatty, SCA president, said, "I recently spoke with Mitch Doherty, Conservation Program Manager at Vital Ground, to let him know SCA would like to help with their efforts at Bismark Meadows."

Over the past 18 years, Vital Ground has purchased 1000 acres of the 1100-acre complex at Bismark Meadows. The NRCS continues to hold wetland easements through their Wetlands Reserve Easements component. Ducks Unlimited was also involved with the return of the meadows to its natural state through a partnership with the NRCS.

Next time you drive by Bismark Meadows, pull over at a wide spot in the road to enjoy the exquisite landscape offered there.

- the lands and resources.
- To monitor, analyze, evaluate and comment upon public and private land managment policies and activities and other events affecting the quality of the environment, and to inform members and interested persons of the same.
- To cooperate with the public, scientific community, and local, state and federal agencies in the collection of data and information regarding land and natural resources and to promote the inclusion of such information into land and resource management plans and activities; to cooperate with such other nonprofit organizations as the Board of Directors may agree upon and to collect and distribute information to such organizations.
- To participate in the administrative process of any agency or entity in the furtherance of land and natural resource management.
- To preserve, protect, restore and enhance the natural and environmental integrity of the Priest River drainage in a manner that not only protects the existing natural resource-based economy, but also promote sound economic growth.

Our vision statement is: "The Selkirk Conservation Alliance is the leading and faithful advocate to all who live, love and benefit from Priest Lake and its surroundings. We are committed to understanding, supporting and protecting the environment and all living beings found here. We are dedicated to the educational programs and scientific research that support and maintain this rare and exceptional environment for future generations."

A coalition of organizations including CANNS, Responsible Growth North East Washington, the Kalispel Tribe of Indians, private citizens and other organizations have previously described the potential negative health and economic impact of this smelter. These include air pollution, odor, acid rain, increased truck and train traffic, and decreased property values in homes located near and down wind of the smelter.

We are compelled to point out the potential negative environmental, health and economic impacts that this smelter may have on the Priest Lake/River watershed and beyond. The smelter is initially projected to generate 760 tons per year of SO2 and 700 tons of NOx making the smelter the 5th largest emitter of sulfur and the 15th largest emitter of oxides of nitrogen in Washington State.

Much more may be generated as the smelter ramps up production in years to come. In addition 85 tons per year of fine particulates (P2.5) will be generated. These are mostly 1 micron particles, so small the lungs cannot filter them out, thereby providing immediate access to the blood stream.

Most of the year the prevailing winds blow from the South and Southwest which will carry this pollution directly into

BISMARK,
CONTINUED, PAGE 10

SCA Board Stance on Lawsuit Against US Fish & Wildlife

BY JIM BELLATTY, SCA BOARD PRESIDENT

In January 2019 the SCA received a request from the Center for Biological Diversity to co-sign a Notice of Intent (NOI) in a lawsuit against the United States Fish and Wildlife Service (USFWS) for failing to finalize endangered species protections and designate critical habitat for Southern Mountain caribou.

The Center for Biological Diversity (CBD), a nonprofit membership organization with approximately 1.1 million members and online activists, is known for its work protecting endangered species through legal action, scientific petitions, creative media and grassroots activism

SCA has dedicated significant time and resources to the recovery of the southern Selkirk herd of woodland caribou over the past few years and the CBD was gracious to invite SCA in to this legal process. The SCA Board and Issues Committee convened a conference call in late January to discuss and to decide whether SCA should join this effort.

After a spirited discussion, a majority of SCA Board voted to hold back on signing the NOI at this time. The primary reason for this SCA Board decision was our *lack of financial resources* and our limited ability to accept any additional or potential legal liabilities or risks at this time. The SCA Board, however, did voice their support for this and other efforts to hold the USFWS accountable for their failure to follow the Endangered Species Act requirements to protect the Southern Mountain caribou.

Clearly, despite SCA's long history and dedication to supporting the recovery of the woodland caribou, our current financial health and fiscal responsibility was the overwhelming factor in this SCA Board decision. This decision might have different with an improved financial outlook, but this is our current leadership challenge and reality. Hopefully, you can understand and appreciate this SCA Board decision and dilemma.

On February 13, 2019, the CBD, along with the Lands Council and the Defenders of Wildlife, issued a formal NOI and news release. You can read this news release on the CBD web page at www.biologicaldiversity.org/news/press_releases/2019/mountain-caribou-02-13-2019.php.

BISMARK MEADOWS,

CONTINUED FROM PAGE 9

the Priest River Basin. Even in the winter when Northeast winds are prominent, a passing weather system will invariably result in winds veering to the Southwest. Precipitation falling through the chemical laced atmosphere will result in the formation of sulfuric and nitric acid. This will then fall on our environment increasing the acidity of the soil and waters.

The HiTest commissioned PSD modeling study commented on surrounding national parks and wilderness areas in the Pacific Northwest, but somehow failed to mention that the Salmo Priest Wilderness is located in the immediate area and, in fact, is principally located in Pend Oreille County.

Acid soil can have a detrimental effect on plant and tree growth. Our forests are already under stress from 100 years of fire suppression, increased insect infestation and rising temperatures. The effects of this acid rain may change the character of our forest and further increase the risk of fire. The long term effect may result in reduced timber health and harvest.

Pollutants in the atmosphere are predicted to have a negative impact on lichen, the primary source of food for the endangered mountain caribou, in the inland rain forest. In 3 of the last 4 years we have had to deal with weeks of smoke during the peak of tourism. Imagine having to breathe not only smoke from fire but NOx, SO2 and fine acidic particulates generated from this smelter.

The adverse respiratory health effects are well known and will disproportionately affect outdoor workers such as loggers, builders, linemen and foresters. Hunters and outdoor recreationists will also be similarly exposed. The health effects are not confined to the respiratory system but also involve increased risk of cardiac disease and cognitive impairment, especially in the elderly. The potential impact to our tourism industry is inestimable.

Additionally the aquatic environment often bears the brunt of the impact from acid rain. At a level of pH 5, fish may die and their eggs will not hatch. Aquatic insects which the trout feed upon are sensitive at even higher pH. The Lower Priest River was once prime habitat for trout and Dolly Varden. The recovery of this cold water fishery may be substantially impaired by acid rain.

The pollution that causes acid rain can spread hundreds of miles. For this reason the US Environmental Protection Agency advises that regional, not just local, input be obtained when there is the potential for acid rain to develop as a result of industrial pollution.

To this end the decision to grant a permit must be based not only on input from Pend Oreille County residents but also on the input from downwinders such as SCA, USFS, Idaho Department of Lands, and Idaho Fish and Game. Other entities appropriately should include the cities of Oldtown, Priest River, Sandpoint and Bonners Ferry, the Kootenai Nation, as well as concerned parties from Montana and British Columbia.

It is clear that the permitting of the PacWest smelter will be not only harmful to the Priest Lake/River environment but also to our resource and tourism based economy. We hold Pend Orielle County accountable to stand by its own Comprehensive Plan which says, "new development is compatible with the surrounding uses, sensitive to the surrounding areas, and retains the rural character of the community".

We understand the urgency that the commissioners feel to find a major customer for the PUD and to provide good paying jobs for Pend Oreille County, but the PacWest smelter is not the right industry for our region for the long haul.

Climate Trends in the Southern Selkirks

BY JAMES LEA, SCA BOARD MEMBER

At the moment there seems to be no topic more controversial than climate change. There are people who not only question the causes of climate change but doubt that climate change is even occurring. Fortunately for those of us who are concerned about the Priest Lake and the Priest River Basin we have a weather station in our own back yard that has been generating data for more than a century. We need only to analyze the data for ourselves.

The Priest River Experimental Forest has had a weather station since 1898. Sporadic and occasionally questionable data were obtained during those early years, but beginning in late 1911 continuous recording of high and low temperatures as well as precipitation have been monitored with very rare exception. In the early days the high and low temperatures were estimates taken at the anticipated times of the daily low or high temperatures. Sophisticated thermometers that could record the absolute daily high and low were not available until later. Therefore the earliest high and low temperatures may be very slightly underestimated.

The raw data are available from a NOAA website: www.ncdc.noaa.gov/cdo-web/search. Search for Priest River Experimental Station, ID US, select date range and add to cart. This should allow you to download data on a spreadsheet. I downloaded the data in 2017 so am a little out of date but doubt this affects the overall data summary.

The graph plots the average annual temperature from 1912 to 2016. Using a linear estimate of temperature change (the straight dotted line) there has been an increase from 43.4 to 44.9 degrees over the last 104 years. This is a change of 1.5 degrees. As you can see the linear regression somewhat overestimates the temperatures in the early 20th century and underestimates the values in the early 21st century. For this reason I also used a mathematical construct called a polynomial regression which follows more carefully the curves over time. With this estimate the average annual temperatures have gone from 42.3 to 45.8 which is a change of 3.5 degrees. Examining the polynomial curve you can see that in the early 21st century there was a rapid warming followed by a long period of slow cooling. Then in the early 90s the slope increases again. So pick your estimate of increased average annual temperature. It is somewhere between 1.5 and 3.5 degrees. These temperature increases seem small. I doubt that I could tell the difference between 42 and 45 degrees while taking a walk in March. But the devil is in the details.

Drilling down into those details. I looked at average high and low temperatures in the winter months, which I considered to be from Dec 1 to Feb 28/29. (For additional graphs please see the full article in our website scawild.org). Here you will see that a linear regression works very well. Interestingly the average winter high temperatures have not changed over 105 years. However, the winter lows have gone up from 17.9 to 22.3 or 4.4 degrees. In reviewing the data it appears that the increase in low temperatures is due to the absence of extreme cold snaps which were very common in the early and mid-20th century. See graph 3. The average number of winter days below zero has gone from 10 to 3 days. In the first part of the 20th century readings of -20 and below were common. The last time it reached minus 20 at the weather station was January 1996.

Looking at summer temperatures which I defined as from June 1 to August 31 there has been an increase in high temperature. In this graph a linear regression shows an increase of 0.8 degrees. Here again a polynomial regression is a better fit for the curve. This demonstrates an increase of 3.8 degrees. This curve is quite similar to the average annual temperature graph with a swing upward in the early 20th century, gradual drift down in the mid-20th century and a sharp swing up since the 90s. You might notice a sharp downward spike in 1993. This was due to the eruption of Mount Pinatubo in the Philippines in 1991 which caused global cooling for 2 to 3 years.

Summer lows show very little difference between overall temperature change between linear and polynomial regressions although the latter fits the curve somewhat better. Basically summer lows have increased about 3.5 degrees. There has been a gradual cooling of summer lows since the 90s which may be attributed to more clear sunny days resulting in hotter days and cooler nights, but this is only speculation.

Looking at the number of summer days greater than 90 a polynomial regression is the best fit with relatively few days above 90 in the early 20th century (about 11) to 24 days in the last 20 years.

Precipitation has not changed much over the century. Whether you use a linear or polynomial regression there has been on average 30-35 inches of precipitation. It is interesting to look at precipitation during the summer fire season. On average in the period from June 1 to the end of August there has been an increase from 4 to 5 inches of rain over 105 years. However, in the hottest two months, from July 1 the end of August, there has been virtually no change at a little more than 2 inches.

In summary it appears that summers are hotter. This means greater desiccation of forest fuels and higher risk of fires. In the winter there are fewer severe cold snaps which may result in less winter kill of bark beetles. Put the two elements together and you get a formula for more and more intense forest fires. The summer of 2015 may become the new norm.

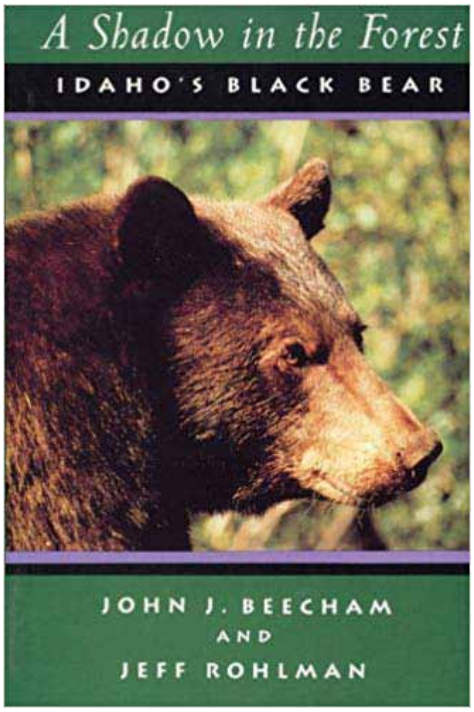
On an individual basis I doubt there is much we can do to alter our local climate change. But at the political level

CLIMATE TRENDS,
CONTINUED, PAGE 12

A Shadow in the Forest: Idaho's Black Bear | book review

ELEANOR HUNGATE JONES, SCA BOARD VICE PRESIDENT

A Shadow in the Forest: Idaho's Black Bear. John J Beecham and Jeff Rohlman



Did you know that Idaho's black bears are more active during the day than at night, that the bear's diet is less than 2 percent meat and that the number of cubs born in the spring is related to the size of the late summer/fall berry crop?

These are just a few of the facts that the authors present about the black bear, a shy, adaptable species whose secretive habits and preference for forest habitats has made it a difficult animal to observe. As an ardent huckleberry picker, of particular interest was the importance of this berry to the black bear of Northern Idaho.

While bears of other areas have a large variety of berries, bears at Priest Lake use only a few berry-producing shrubs are thus very vulnerable to huckleberry crop failures. In 1979, a major crop failure at the lake resulted in starvation, decreased bear productivity and survival for two years. Increased black bear damage complaints were also reported when drought or late spring freezes damaged berry crops.

The authors began collecting biological data in 1972 in order to develop a comprehensive management program for the state's black bear population. This book summarizes much of their research, with significant study done in the Priest Lake area. As the black bear's range shrinks with man's encroachment into isolated areas, studies such as this one offer scientists and naturalists the necessary data to make informed decisions about successfully managing this unique and irreplaceable species of American wildlife.

For the general reader, this book will provide a greater understanding of the rare and elusive black bear of the Priest Lake-Selkirk Range.

CLIMATE TRENDS,

CONTINUED FROM PAGE 11

there may be things that could be done to reduce fire risk. Right now Bonner County is revising its long term planning.

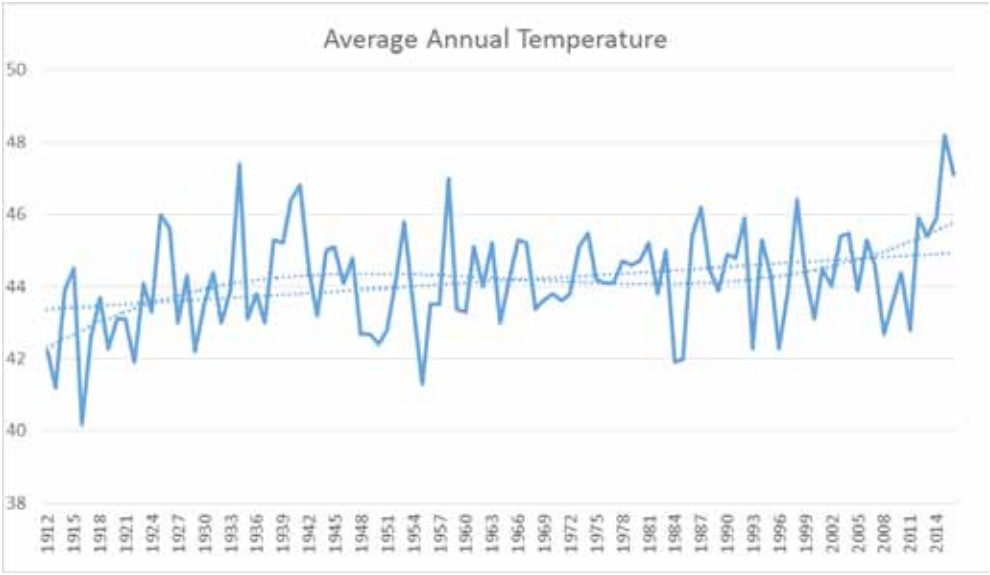
One very obvious thing that can be done is to institute an outright ban on aerial fireworks. It is unconscionable that every year our forests are placed at risk because of a few individuals who feel the need to launch exploding devices from their front yards.

Another thing would be to avoid building housing developments that are deep in the forest. We don't want to see another Paradise, California event. I am sure that collectively we can think of many other things that can be done as well.

We are fortunate that we have the old weather station continuing to monitor the situation. One thing is certain. I would not bet that the trends of the last 105 years are going to suddenly turn around tomorrow.

These are my observations but there is a wealth of data to be mined. Go the website, download the raw data and do your own analysis. There is probably a lot more information to be gleaned.

Average Annual Temperature at Priest River Experimental Station, ID



Kaniksu Community Forest Restoration Project

BY BARRY ROSENBERG, SCA MEMBER

Are you aware that the Priest Lake Ranger District is in the initial stages of planning a timber sale called "The Kaniksu Community Forest Restoration Project"?

If not, this is a heads up to SCA members and others who are interested and concerned about forest management in the Priest River Basin.

This proposed timber sale covers 138,000 acres from Priest Lake to Priest River, Idaho. If only ten percent of these acres are logged, this one timber sale could produce more board feet than all of the Idaho Panhandle National Forest (IPNF) ranger districts in one year! The IPNF has been cutting between 40 and 70 million board feet per year for the last 20 years and many of these watersheds have been heavily logged and damaged.

What is driving these large timber sales? Our national forests are undergoing a major shift in management. The amount and size of timber sales are on the rise. There is a movement towards privatization and management of timber sales on federal lands by timber corporations and state forestry agencies, like the Idaho Department of Lands (IDL). Environmental analysis and the public's right to challenge decisions have been weakened and in some cases eliminated. This is being facilitated by new laws, regulations, and collaboration in the ironic name of 'Forest Health and Restoration.'

In many instances, the United States Forest Service (USFS) budget is tied to how many trees it cuts, thus more logging secures agency jobs. Money and jobs are used to justify most environmentally damaging projects. The fear of wildfire, insects and disease are other tactics that the USFS and the timber industry use to get the support of the public and politicians. Collaboration, between timber industry, politicians, resource extractors and some environmental groups—who all profit in some way from timber sales—can promote very large and damaging timber sales with questionable science and virtually no scientifically credible monitoring.

Another significant change in forest management is the passage of the 2014 Farm Bill. One of its provisions is the expanded use of the Categorical Exclusion (CE). A CE allows the USFS to log up to 3,000 acres without having to do the required environmental analysis as long as the stated purpose of the timber sale is to reduce insects and diseases, lessen the risk and intensity of wildfire and will not have a significant effect on the environment.

CEs also severely limit public comments, since collaboration must also be part of the decision process, and they do not allow the public the usual right of an administrative appeal or objection. The only way to challenge a CE is in court. Litigation is time consuming and expensive, and is usually beyond the reach of the average citizen and most small non-profit environmental groups.

I bring this Kaniksu Community Forest Restoration Project proposal to your attention, not to be alarmist, but to inform you about the scale and the significance of this project early in the USFS planning process.

This is a project to track on your radar screen. In my personal opinion, the potential damage to the forest's water, fish, wildlife, soils, and the reduction of biological diversity far outweigh the questionable benefit of removing all that biomass and turning our national forests into tree farms. Something for SCA members to contemplate and consider.

Further information about the Kanisksu Community Forest Restoration Project, please contact: Phil Cano, District Ranger, Priest Lake Ranger District, phone 208-443-6801. Dave Cobb, Project Team Leader, Priest Lake Ranger District, phone 208-443-6854

Advertising Opportunities in *SightLines*

To help offset newsletter production costs, a business card advertisement is now being offered at $35/year, a quarter page for $75, half-page for $150, and full page for $300.

Digital submissions of advertisements should be sent via email to sca@scawild.org no later than April 1 for our spring newsletter and by October 1st for our fall edition. Each ad will run for two consecutive newsletters.

SCA will contact you for payment upon receipt, review, and acceptance of your print copy. The SCA reserves the right to reject advertising that is not consistent with our mission or is deemed otherwise offensive by the Board of Directors.

Conservation & the SCA: 'What's Love Got to Do with It?'

BY BETTY GARDNER, SCA BOARD MEMBER

I moved to North Idaho from the Philadelphia suburbs forty years ago as a disillusioned refugee from the east coast megalopolis, riddled with pollution, overcrowding, auto exhaust, noise, bursting parking lots, long lines, busy highways, and oil refineries. I decided to turn my back on all of the mayhem, go west, find a good man, fall in love, build a house, have a family, garden, and "get back to nature." I wanted to live near clean water where my kids could swim all summer. I wanted a big white dog.

At twenty-one, I loaded up my beater Ford, heading west. I landed in Priest River, Idaho in 1978. I was totally naive about living in the wild or navigating through four feet of snow. I fell in love with the natural beauty of the area. Nothing discouraged me. This felt like home. Here I met the wonderful man I would spend the rest of my life with. He was building a house on the Priest River, a vegetarian and he had a big white dog.

We lived off the grid and grew veggies, an orchard, herbs and flowers. Our family grew, blessed with daughter and son in the next few years. We raised them on organic garden goodies, wild blackcaps, thimbleberries, serviceberries, elderberries and huckleberries. We gathered wild ginger, Oregon grape leaves, fiddle leaf fern tips, wild mushrooms, mints and chamomile.

Our kids are able to say "We remember when we got electricity… running water… phone." Their friends asked incredulously, "What century were your born in?" We spent every day in the garden and at the river

Why is Selkirk Conservation Alliance important to me? Why did I become a Board Member? The Priest Basin is an incredible and rare environment to easily, freely and safely enjoy nature. However, I am concerned about the future. Each of us has to do all we can to protect and preserve this amazing natural wonderland. Specifically, I am concerned about some disturbing changes I have seen over 40 years on the Priest River.

In the 1980's and 90's my dad used to visit us for two weeks every summer. While he was here, he would fish and catch the legal limit of river trout every day. About 20 years ago, we began to notice a brown/green slime and muck appearing on the banks of the river. We watched this get thicker each year and the rocks got slippery, turning it in to a ½" thick carpet sponge. At first it was just along the edge, but it spread eventually blanketing the floor of the river. Trout became scarce. Dad went from catching 7 trout to a few or zero a day. We stopped finding brown crayfish and now we see large schools of warm water loving bass. Three years ago, yellow pond lilies appeared in the river for the first time.

In 2001, a meeting was held in Coeur d' Alene sponsored the Idaho Department of Environmental Quality (IDEQ) to discuss Priest River water quality. I took slimy rocks with me. Glenn Rothrock, now retired, IDEQ specialist, guessed this was brown/green algae caused by sediment loading combined with increased temperatures of the river. Sediment loading caused by natural and manmade events and other pollutants have combined with warm water to spark algae growth.

The Priest River is getting warmer due to possible climate change, the disappearance of natural canopy along its banks from logging or other causes, the dam at Priest Lake and other influences. The Priest River was designated by IDEQ as "Impaired" in the Priest River Sub-Basin Assessment and Total Daily Maximum Load in 2001 and suggested that a remediation plan be implemented by 2007. Eighteen years have passed but no plan is in place.

Priest Lake shares equally disturbing news. In the SCA's Fall 2017 Sightlines newsletter, an article entitled, Priest Lake Water Quality Data, Past and Present, SCA presented a map showing IDEQ Impaired Water Listings. The 2017 map shows 34 tributaries entering Priest Lake are now designated as "Impaired." As waterways draining into Priest Lake become more inhospitable for native species, those waterways could suffer the same fate as the Priest River.

SCA is dedicated to protecting the lake and surrounding environment. One of the many ways we support that is by monitoring water quality of the lake by taking samples each year in several places many times each summer. SCA volunteers have been doing this for 31 years. SCA is the only organization routinely taking water quality samples on the lake, precluding all of the government entities whose responsibilities include the lake's protection. The IDEQ has asked SCA to share our data which could be used by them for baseline studies to identify changes or declines in the health of the lake. Yes, SCA is doing the government's work. If we go away who will take over? Glenn Rothrock told me in 2001, the IDEQ did

Take Action by Renewing Your SCA Membership

Take Action by Growing the SCA Membership Base--and Its Collective Voice

This is a great reminder for SCA members to renew their 2019 membership.

Furthermore, SCA needs to recruit more members who are passionate about Priest Lake. Let's work together to make sure our grandkids and their children still can enjoy playing in clean water in North Idaho for generations to come.

not have the funding to save the Priest River and the only way to make government entities take action was public outcry and pressure to do so. Until I joined SCA I felt like one person sounding a lonely drum with a marshmallow. SCA is listening and trying to help Priest River. It now has two Priest River property owners on the Board.

If SCA is to continue, we need you to remain the loyal members you are. SCA has always relied on just one or two generous patrons to provide most of its financial support. Without their generosity the organization would have disappeared long ago. We are grateful for their kindness. We are now facing the fact that our most significant and long-term benefactor has indicated that he is ready to step back. Membership dues are incredibly important and we thank you for that, but it has never been enough to keep SCA solvent. We are also experiencing a huge decline in membership and donations. SCA is faced with the task of finding other persons, groups, and grants to continue. Presently we cannot afford to pay an Executive Director whose responsibilities include finding and applying for grants. Yes, SCA's future is in a precarious position.

SCA wishes to acknowledge all past and present members, staff, board members and patrons. Thank you for your participation and generosity. If you, like me, can't afford to do much more than pay annual membership fees there are other ways you might help. SCA needs all of us to help recruit new members, partners and benefactors. Can you assist with water monitoring, do a roadside trash pick-up, or run a class at Priest Lake to interest visitors about the Selkirk/Priest Basin and SCA? Are you good at fundraising? Will your employer match any donations you make or offer SCA grants? Are you or do you know any philanthropists who might support our work? Please send them our way. Feel free to share this article.

Brown spongy muck found at Gardner's waterfront on the Priest River, 2018

In the last two years the Board has worked very hard. We have a new Chairman of the Board, Jim Bellatty. He has worked for several of the government agencies that we need to collaborate with to help protect the lake. He knows the ins and outs of working with them to get their support. Many of our board members are new recruits. Past board members and members are invited to our open meetings and can serve on committees. We have two seats open. Are you interested in serving? We have rewritten our by-laws and employee handbook to become efficient and relevant. We rewrote our mission and vision statements to speak to what SCA represents today. This is all on the SCA website.

Help us breathe new life into this valuable organization. Please remember why you joined SCA and stay with us.

The Selkirk/Priest Basin is facing challenges that SCA is championing, including fighting a proposed Silicon smelter a few miles south of Priest Lake in Newport, Washington. The smelter will emit 760 tons of Sulfur Dioxide and hundreds of tons of other greenhouse gasses into the atmosphere annually for approximately 50 years. Its footprint will cast a shadow on Priest Lake and surrounding areas. The company, PACWEST admits the possibility of doubling these amounts in a few years. Undeniably, SO2/ acid rain will find its way into Priest Lake, and the Selkirk/Priest Basin (See p. 16 2017 Fall *Sightlines* 'Silicon Proposal').

SCA is more necessary than ever. You are the most important link in this chain. We implore you to help us to help you to keep Priest Lake and the Selkirk/Priest Basin the jewel it is. No kid should sit at the edge of a contaminated lake, wishing it was clean enough to jump in. Let's work together to make sure our grandkids and their children still can enjoy playing in clean water in North Idaho for generations to come.

Green slime found on rocks at Gardner's waterfront on the Priest River, 2018

2018 Priest Lake Water Quality Update

BY CHERYL MOODY, FORMER SCA EXECUTIVE DIRECTOR

This article provides an update since my last water quality newsletter summary (Sightlines, Fall 2017). For more background on each of these data types, and a map of sampling site locations, please refer to that article.

Before reviewing the results, I'd like to give a shout out to the following volunteers who contributed a significant amount of time to the 2018 sampling program:

Captain Bruce Yocum – Bruce has captained the SCA boat, including boat mob/demob and maintenance, for an entire decade. Bruce announced his retirement in 2018 and new board member Jonathon Quinn-Hurst is training to be our new captain. If you have an interest in supporting this work and have significant boating experience, the SCA needs you! Sampling trips normally occur on two Mondays or Tuesdays each month, June – September. With no paid technical staff at this time, this program will have to be scaled back dramatically if new volunteers don't step up.

Jan Bock – Jan is a new SCA member who called to volunteer after seeing our 2017 water quality letter. Jan and her husband Jerry were frequent helpers during the 2018 season, and Jan has learned how to operate all the sampling equipment.

Sandy Mansfield – Sandy consistently helped prep bottles and forms prior to each sampling trip. Preparing bottles and forms in advance of the trip keeps things moving smoothly on the boat, particularly when its windy or rainy.

Other helpers during 2018: SCA Board Chairman **James Bellatty**, Board Member **James Lea**, **Susie Short**, **Annie Castleberry**, **Rob Castleberry**, **Skip Chapman**, and **Dan Noran**.

Priest Lake Water Clarity

Water clarity is measured by means of a Secchi Disk, a device which is lowered into the water until it can no longer be seen. Results in the table below are those recorded without the use of a view tube, something that is used in modern limnological studies, but was not available at the time the original studies were completed in the early 1990s. It is important to note that weather, glare, and wave action can affect Secchi disk readings when a view tube is not used. Historically, limnologists made detailed weather observations along with the conditions of the water at the time of observation. Now, we routinely record Secchi disk readings both with and without a view tube. The tube mostly eliminates glare, weather challenges, and wave action discrepancies from the observations. That said, the data collected without the tube are the only comparative data we have to work with at this time.

TABLE 1:
SAMPLING EVENTS BY YEAR, PRIEST LAKE WATER QUALITY MONITORING SITES

Table 1 provides a summary of the total recorded number of sampling events by monitoring site.

SITE NAME	1993	1994	1995	2008	2010	2011	2012	2013	2014	2015	2016	2017	2018	TOTALS
BREK			4									6	4	14
CAVA	6			4							2	6		18
COOL	6			4								6	4	20
DIST	6												4	10
GNAR	5		6	4								6	4	25
HUCK	6	6	6	4							2	6	4	34
INDI	6											6		12
KALI	6	6	6	1	6	5	4	3	2	1	3	6	4	53
LUBY												5		5
LWPR		6	6										3	13
LWQA-S										1	3	6	4	14
MOSQ		6		2	6	5	5	3	2	1	4	6	4	44
NGRA (or GRAN)	5													5
NREE (or PLMD)	5													5
OUTL	6			4								6		16
PLNO	6	6	6	4	6	5	4	3	5	5	4	6	4	64
PLSO	6	6	6						5	5	4	6		38
SQUA	6											6		12
UPLK	6	6	6								3	6	4	31

Table 2 shows that most of the May-July sampling sites have improved visual clarity since the sewer systems were installed. Both Cavanaugh Bay and Outlet Bay bucked the general trend of spring improvement in 2017 (staying the same or decreasing in clarity) but are not scheduled to be sampled again until 2019 (funds permitting!). Most sites showed degradation during the August-October season. While this is discouraging, it's important to remember that these numbers are still very good when compared to many lakes in the U.S.

HISTORIC & CURRENT TOTAL NITROGEN/TOTAL PHOSPHORUS RATIOS (TN:TP)

While data on Total Phosphorus (TP) or Total Nitrogen (TN) are of interest to limnologists, it appears that the ratio between the two is now considered a better indicator of overall water quality/lake health than one or the other (Downing & McCauley, 1992). The ratio can also provide information on whether or not P or N is the limiting nutrient in a lake. Historically, many of the sites where we have good TP data have no TN data (or vice versa). Moving forward, as funds allow, we will continue to collect samples for analysis of TN and TP.

The TN:TP ratio is typically high in oligotrophic lakes (like Priest) and lower in eutrophic lakes, declining as TP increases. The ratio is high in oligotrophic lakes because they typically receive their N and P from natural, undisturbed watersheds which characteristically export less P than N, but this can vary depending on local geology. However, as development increases around the tributaries which feed into Priest Lake, these inputs are expected to change. Typically, TN:TP ratios greater than 10 means the lake is P-limited. As such, reducing P inputs would reduce algal growth and the production of aquatic plant biomass.

In their paper The nitrogen: phosphorus relationship in lakes (1992, Limnology Oceanography 37(5)), John Downing and Edward McCauley provided summary data explaining the typical ratios from different land-types, submerged sediments, and geologic types. Table 1 from their paper is provided below, and indicates that ratios from undisturbed forestlands could be as high as 70, precipitation values (at least in the 1960s) were typically in the low 20s, while sediments below oligotrophic lakes like Priest were

New volunteer Jan Bock learning to operate the temperature/dissolved oxygen meter probe on its fiber optic cable, Bruce Yocum overseeing the training.

TABLE 2: CHANGES TO WATER CLARITY SINCE PRIEST LAKE MANAGEMENT PLAN STUDIES

SITE NAME Only Includes sites sampled at least one season from 1993-1995 and again in 2017 and/or 2018	Secchi May-July avg 1993-1995	Secchi May-July avg 2017	Secchi June-July avg 2018	Spring Change From Past to Present (22-25 years)	Secchi Aug-Oct avg 1993-1995	Secchi Aug-Oct avg 2017	Secchi Aug-Sept avg 2018	Fall Change Past to Present (22-25 years)
BREK	6.1	5.3	7	Mixed	5.1	N/A	7	Improved
CAVA	7.6	7.6	N/A	No Change	11.9	10.8	N/A	Degraded
COOL	7.7	8.2	6.5	Mixed	N/A (~10 in 2008)	8.5	8.5	Degraded Since 2008
DIST	6.2	N/A (10 in 2008)	8	Mixed	N/A (~11.2 in 2008)	N/A	8.75	Degraded Since 2008
GNAR	7.2	8.0	7.5	Improved	11.3	9.7	11.5	Mixed
HUCK	7.9	8.3	8.25	Improved	11.6	10.6	9.25	Degraded
INDI	7.6	8.8	N/A	Improved	12.1	11.0	N/A	Degraded
KALI	7.3	9.3	7.4	Improved	11.9	11.3	10.5	Degraded
MOSQ	6.3	8.2	7.5	Improved	9.3	9.8	9	Mixed
OUTL	7.9	7.8	N/A	Degraded	N/A	7.5	N/A	N/A
PLNO	7.3	8.2	8.75	Improved	11.5	10.7	9	Degraded
PLSO	8.3	9.8	N/A	Improved	12.2	11.3	N/A	Degraded
SQUA	6.8	7.2	N/A	Improved	N/A	10.8	N/A	N/A
UPLK	5.5	6.3	7.25	Improved	9.6	8.3	9	Degraded

as low as 3.3. If you study this table, values below 10 are mostly associated with runoff from things in which most people probably wouldn't be delighted to recreate, but that doesn't mean our waters are polluted, just simply that our water quality is degrading over time in some areas.

Personally, what I find most disconcerting/puzzling about the 2018 data is that we had above normal precipitation (160+%) which means the lake should have had larger than normal inputs of "fresh" water/snowmelt (presumably with ratios in the low 20s). However, our June values are for the most part lower than ratios obtained in 2017. One exception is the upper lake, which had values in the low 20s (but had been in the mid-30s in 2017). Because land development above the upper lake is much more limited than above many of the other sampling stations, the lower value from increased precipitation/runoff seem to make sense. However, the much lower June values (9.4 to 18.9) observed at the other sites may mean that the runoff into these bays/areas has already been heavily influenced by adjacent land use/development. The low N to P ratios could be a little concerning – Smith et al. 1995 indicate that ratios below 22 could result in cyanobacteria issues – so Priest Lake is close. For oligotrophic lakes, the addition of P is much more of an issue than N, so we need to be mindful of the trends in P over time.

In closing, it seems clear that the downward trend in overall water quality noted in 2017 continues in many areas around the lake. While I had hoped to complete a detailed analysis of historic vs. current temperature data by depth, the original data sheets completed in the early 1990s appear to have been destroyed by the State of Idaho. We'll keep looking, but at this juncture optimism is fading…

N : P in lakes 937

Table 1. Average N : P mass ratios in potential nutrient sources of freshwater lakes. Conversions can be made to molar ratios by multiplying mass TN : TP by 2.21.

Source	N : P	Reference
Runoff from unfertilized fields	247.4	Loehr 1974
Export from soils, medium fertility	75.0	Vollenweider 1968
Export from forested areas	71.1	Loehr 1974
Export from rural and croplands	60.9	Loehr 1974
Export from soils, fertile	33.3	Vollenweider 1968
Groundwater	28.5	Uttormark et al. 1974
Precipitation	25.4	Allen et al. 1968
Runoff, tropical forest	23.5	Bruijnzeel 1991
Precipitation	23.2	Loehr 1974
Export from agricultural watersheds	20.0	Uttormark et al. 1974
River water	18.9	Ebise and Inoue 1991
River water (Mississippi)	12.2	Turner and Rabalais 1991
Sewage	10.0	Golterman 1975
Seepage from cattle manure	8.9	Loehr 1974
Zooplankton excreta	8.9	Lehman 1980*b*
Fertilizer, average	7.9	Turner and Rabalais 1991
Precipitation, tropical	7.7	Bruijnzeel 1991
Redfield ratio (mass)	7.2	Harris 1986
Feedlot runoff	6.4	Loehr 1974
Sediments, mesotrophic lake	6.3	Fukushima et al. 1991
Urban stormwater drainage	5.8	Loehr 1974
Sewage	5.3	Vollenweider 1968
Zooplankton excreta	5.0	Lehman 1980*a*
Pastureland runoff	4.8	Loehr 1974
Urban runoff	4.7	Uttormark et al. 1974
Sediments, oligotrophic lakes	3.3	Fukushima et al. 1991
Sewage	2.8	Vallentyne 1974
Septic tank effluent	2.7	Brandes et al. 1974
Sediments, eutrophic lake	2.5	Fukushima et al. 1991
Gull feces	0.8	Portnoy 1990
Rocks, sedimentary	0.8	Vinogradov 1962
Rocks, felsic	<0.1	Vinogradov 1962
Earth's crust	<0.1	Mason 1958
Rocks, mafic	<0.1	Vinogradov 1962

TABLE 3: HISTORICAL VS. PRESENT TN:TP RATIOS FOR EIGHT PRIEST LAKE MONITORING STATIONS

Table 3 summarizes our historical vs. recent (2017 and 2018) TN:TP ratios.

SITE NAME *(Only includes sites where historic TN/TP Ratios Available)*	**Historical Data from 1993-1995 in most cases**	**MAY**	**JUNE**	**JULY**	**AUGUST**	**SEPT.**	**OCTOBER**
BREK	Historical	43	19	11	N/A	N/A	N/A
	2017	43	28	32	20	24	31
	2018	N/A	9.4	18.6	7.9	17.9	N/A
COOL	Historical	11	10	30	18	14	21
	2017	51	26	11	14	16	20
	2018	N/A	10	21.9	12.1	20.9	N/A
GNAR	Historical	30	N/A	13	28	69	22
	2017	41	33	37	21	8	36.3
	2018	N/A	15.7	15.6	15.8	17.7	N/A
HUCK	Historical	32	19	16	43	12	20
	2017	41	25	22	16	22	31.5
	2018	N/A	16.1	17.5	8.8	19.3	N/A
KALI	Historical	44	15	29	29	16	18
	2017	45	37	14	10	8	25
	2018	N/A	16.7	20.9	10.1	29.3	N/A
MOSQ	Historical	61	23	36	17	23	18
	2017	44	28	31	31	28	33
	2018	N/A	18.9	16.6	10.6	15.9	N/A
PLNO	Historical	50	25	19	28	31	28
	2017	53.9	31	41	19	8	33
	2018	N/A	11.2	15.6	8.0	17.3	N/A
UPLK	Historical	35	43	31	26	25	29
	2017	55	34	56	19	23	37
	2018	N/A	21.9	21.9	11.4	25.6	N/A

Nature's Pantry: Everyone is Welcome

BY BETTY GARDNER, SCA BOARD MEMBER

As you walk through the forests, valleys, hills and mountains of North Idaho you may not realize that often you are passing by plants and mushrooms that are edible and have many uses. Native Americans were aware of hundreds of plants that they used for food, medicine, tea, rope, baskets, clothing, roofs, insulation and much more. Many of the foods that early settlers gathered in the wild kept them alive when food they raised ran low. Most wild edibles but not all are organic. When gathering wild foods, stay away from plants on roadsides which may have residues from ice removal chemicals and are often sprayed with herbicides. Native plants are not GMOs.

Most of us are familiar with bird identification books but don't stop there. When hiking and visiting the forest a good book on plant identification is a lot of fun to have along. There are countless books on wild ferns, mushrooms, flowers, herbs, berries and related topics. You can Google articles or pictures about a specific plant. There is a ton of information including where to find them and possible uses.

When buying a book, look for one with really good photos or drawings. If you are perplexed as to what to give a loved one for Christmas, why not give them a book and make a date for a hike, picnic and day out identifying plants? If you time it right, you might find huckleberries while you are at it. Pressing flowers to make cards or to frame is also fun. Just remember never to pick all of the flowers of any one plant. Leave some behind to reseed the patch. Don't dig up roots or remove plants. Treat berry bushes gently so nothing you do endangers or wipes out an entire patch. Tread gently, only leaving footsteps behind.

Here are a few recipes to inspire you followed with some books I have in my library.

Huckleberry Bars

Perfect for those who don't prefer overly sugary deserts. Good goodies and easy to make.

I cup chopped walnuts or pecans
¾ cup of honey
½ cup butter
1 ½ teaspoon cinnamon
1 cup whole wheat flour
½ teaspoon salt
1 cup unbleached white flour
1 teaspoon baking powder
1 teaspoon baking powder
1 cup buttermilk or 1/2 cup sour cream and 1/2 cup milk
6 tablespoons wheat germ (or ground oatmeal)
2 eggs, lightly beaten
2 cups Huckleberries

Mix honey, flours, oatmeal (or wheat germ) and butter until crumbly, don't overmix. Take 2 cups of this and pat into 9x13 baking pan. Mix other ingredients into the unused portion of flour mix, stirring lightly adding huckleberries last. Spread this batter on top of first layer already in pan. Bake at 350 for 35 to 40 minutes until cake is springy and thin knife comes out clean when inserted.

Huckleberry Glace Pie

9" baked pie shell or prepackaged graham cracker crust
6 cups Huckleberries -- about 1 ½ quarts
1 cup water
¾ cup honey (or 1 cup sugar)
3 tablespoons cornstarch
16 ounces softened cream cheese,
1 teaspoon vanilla and ¼ cup honey mixed together

Mash enough berries to make one cup. Leave the rest of the berries whole and set aside. Stir ¾ cups honey (or 1 cup sugar) and corn starch together. Gradually stir in mashed berries and water. Cook over medium/high heat stirring constantly until mixture thickens. Bring to boil for one minute. Once thick remove and cool. Spread cream cheese mixture into pie shell. Add whole berries

and top with the cooked berries. Chill at least 3 hours.

Huckleberry Cordial

One gallon of fruit
1 cup honey or other sweetener
½ gallon brandy or vodka

Fill a one-gallon glass jar with huckleberries, (blackcap berries or plums work just as well). Use only ripe, fresh fruit, no leaves or stems, make sure fruit is not moldy. Add ½ gallon of brandy or vodka. Add one cup of honey, or other sweeter. Add enough water to eliminate any air space. Put on a well-fitting lid. Tip jar a few times to mix ingredients. Store in a dark closet. Open and serve at Christmas. Enjoy the fruit too.

Books I have used:

Peterson Field Guides, Pacific States Wild Flowers, Boston: Houghton Mifflin Company. Kershaw, L. (2000).

Edible & Medicinal Plants of the Rockies, Auburn, WA: Lone Pine Press Crowhurst, C. (1973).

The Flower Cookbook, New York: Lancer Larchmont
Faust, R. and P. (1999).

Wildflowers of the Inland Northwest, Coeur d' Alene: Museum of North Idaho Clark, L.J. (1984).

Lewis and Clark's Field Guide to Wild Flowers of Field and Slope of the Pacific Northwest, Seattle: University of Washington Press. Hitchcock, C.L., Cronquist, A. (2001).

Flora of the Pacific Northwest, Seattle: University of Washington Press
Weiner, M.A. (1972).

SCA 2019 Calendar of Events

Please review our list of SCA activities planned for 2019. We encourage members and others to attend these scheduled events to enjoy and to engage with other SCA members. Contact the event organizer via email to sign up or to answer any questions.

If you have ideas for other ways you'd like to give your time or support, please email sca@scawild.org or call the SCA office at 208-448-1110.

VOLUNTEER ENGAGEMENT ACTIVITIES

Priest Lake Water Quality Sampling

Ongoing

SCA has been conducting volunteer lake water quality monitoring at Priest Lake for more than two decades. In 2019, we will use our SCA pontoon boat to collect water quality samples at 12 monitoring sites between June and September. As always, SCA needs volunteers to help with this process, including taking notes, anchor/docking and to participate in the sampling process. The SCA pontoon boat leaves from the Granite Creek Marina. Please contact Jon Quinn-Hurst (jquinnhurst@gmail.com) if you need specific details about sampling dates/times or more information about this important SCA activity.

SCA Board Meetings

June 11, 2019 | 12 pm to 2 pm (Hill's Resort)
August 15, 2019 | 2 pm to 4 pm (Coolin Community Hall)

The SCA Board meets once every two months at various locations. The meeting usually lasts 2 hours and SCA members are welcome to attend and share their views and perspectives with the SCA Board. Please contact the SCA Board President Jim Bellatty via email at syzygy12@comcast.net to obtain more information about attending an upcoming SCA Board meeting.

SCA Annual Membership Meeting and Potluck

August 15, 2019
4-7 pm | Coolin Community Hall

According to our newly adopted SCA By Laws, the Annual Meeting of the Membership shall be held the third quarter of each year. SCA encourages members to attend this meeting and get to know the SCA Board of Directors. This is your chance to bring up issues, share your views and perspectives and to elect Directors (if there is a vacant position and a quorum of one-tenth of the authorized voting members). The Community Hall is a great facility for this meeting and potluck.

Looking for Litter Pickup Coordinator

SCA's longtime litter pickup coordinators are handing off the reigns for 2020 cleanups. Want to know more? Email Rosemary Yocum at ryocum@hughes.net or sca@scawild.org

SCA Adopt A Highway Litter Pickup

October 6, 2019
10 a.m.

SCA adopted a 2 mile section of Highway 57 in 1991 and has kept up the tradition ever since. We faithfully clean up after those who choose to litter our public roadways. Litter pickup volunteers meet at mile marker 16.5 at 10 a.m. and will be provided with trash bags and a high visibility vest. Typically, we have ~ 6 volunteers and collect ~ 8 bags of trash in 2 hours. Please contact event organizer Rosemary Yocum via email (ryocum@hughes.net) if you are interested in being part of this important effort to keep Highway 57 clean!

MEMBER OUTINGS & ADVENTURES

Paddle, Row or Float to Upper Priest Lake

July 13, 2019
10 am to 4 pm

A paddle/row/float up the Thorofare is an enjoyable summer activity and an ideal opportunity for SCA members to get out on the water and to share some time together. The trip leaves the Beaver Creek boat launch at 10 a.m. and will proceed up to the Geisinger Campground for lunch. Please bring the requisite safety gear, invasive species sticker, etc… and food/drink. A liability waiver will be required. Contact Jim Bellatty via email (syzygy12@comcast.net).

Women's Kayak/Canoe Thorofare Trip

July 20, 2019
9:30 a.m. to 2:15 p.m.

Give yourself a day to enjoy with active and like-minded women who enjoy the calm and tranquility of a paddle through the Thorofare. East-side women "set-sail" from Lion Head Campground launch area at 9:30 a.m. Meet up with West-side women who can launch from Beaver Creek Campground and either paddle to the Spit crossing or join us at the S curve entry on the Thorofare at 10 a.m. Upon reaching Geisinger Campground at the entrance to Upper Priest Lake, enjoy your self-packed lunch and good conversations before heading back. Liability waiver required. Please contact event organizer Eleanor Hungate Jones via email at ejjones3@gmail.com. Also leading trip: Anne Ashburn.