WATERSHED WORDS

WATERSHED: [waw-ter-shed | noun] refers to the drainage basin into which precipitation, streams, and ground water flow

RIPARIAN: [ri-pair-ee-uh n | adjective] the zone adjacent to the banks of the channel, acting as a crossroads between the stream channel and the uplands. Plants provide cover and food for life within the creek as well as animals which visit from the uplands.

REACH: [reech | noun] the distance between two points where the stream is more or less the same.

CHANNEL: [chan-I | noun] the stream bed or bottom `pathway', which spreads from bank to bank as a street spreads from sidewalk to sidewalk allowing water to flow

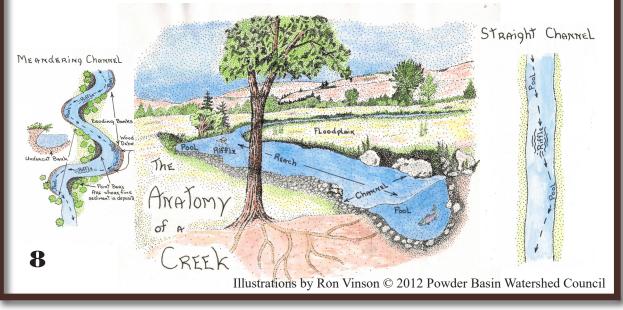
FLOODPLAIN: [flood•plain | noun] an area of low-lying ground adjacent to a river, formed mainly of river sediments and subject to flooding.

HYPORHEIC ZONE: [hy•porh•e•ic | noun] a region beneath and alongside a stream bed, where there is mixing of shallow groundwater and surface water.

THALWEG: [tahl-veg | noun] a line drawn to join the lowest points along the entire length of a stream bed or valley in its downward slope, defining its deepest channel; thus marking the natural direction (the profile) of a watercourse.

BASE FLOW: [noun] during the drier months, stream flow drops, with the lowest flow, occurring between mid-July and late October.

PEAK FLOW: [noun] as temperatures warm in spring, the melting snowpack causes streams to swell with water, occurring between April and June.



Powder Basin **Watershed Council**

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THE THALWEG



FALL EDITION

LIVING IN HARMONY • QUARTERLY NEWS FROM THE POWDER BASIN WATERSHED COUNCIL

Getting to Know Your Watershed **Welcome to the Powder Basin Watershed**

by Meghan Rorick, PBWC Staff

This is the first edition of a quarterly newsletter published by the Powder Basin Watershed Council. The Council serves residents in the Powder Basin watershed, which includes all of Baker County and portions of Union, Malheur, and Wallowa Counties.

S o, what exactly is a watershed? A watershed is an area of land that drains to the lowest point. As water moves downhill, it forms pathways or drainages, which then merge into larger and larger streams and rivers as they make their way toward the ocean. Watersheds can be large or small and a ridge of high land separates each watershed. It is important to remember that wherever you are, you are always in a watershed. Any activity that may impact a stream in one location will affect the watershed and all its residents down-

The Powder Basin watershed is over 1.5 million acres and is separated into three sub-basins (or sub-watersheds): the Powder River, the Burnt River, and the Brownlee subbasins. While the Powder River and Burnt River sub-basins consist of their respective rivers and tributaries, the Brownlee sub-basin consists of several individual streams that flow directly into the Snake River.

Did you know that there are roughly 4,000 miles of stream that flow through Powder Basin? These streams and rivers support many species of fish, including redband and rainbow trout, whitefish, bull trout, bass, brook trout, carp, and white sturgeon. Before the Hells Canyon Dam was constructed, the basin also supported anadromous fish populations

of Chinook and steelhead.

Powder Basin is bordered by the Blue, Elkhorn, and Wallowa Mountains, which provide the basin with a diverse topography and a range of ecosystem types. In the valley bottoms, the climate is arid to semi-arid and

storage recharge our streams and rivers, not only providing habitat for wildlife, but also providing the majority of the drinking and irrigation water for the basin's residents.

The Powder Basin Watershed Council is a locally organized non-profit that seeks to work collaboratively with landowners to implement projects that will benefit the health of the watershed and improve or maintain economic prosperity for residents. Projects may include riparian



Van Patten Lake, Photo by Meghan Rorick, PBWC Staff

vegetation is predominantly comprised of sagebrush and grasses. Here you'll find herds of deer and antelope, hawks, osprey, and of course, the iconic sage grouse. The higher elevations will receive as much as 60 inches of precipitation yearly, the majority of which will be snow, and coniferous forest will be the predominant ecosystem. Elk, bear, mountain lions, mountain goats, wolves, coyotes, beaver, and many other species also call Powder Basin home. Support- sharing information with our stakeholders is ing it all is water. Snow and groundwater

plantings, bank stabilization, irrigation efficiency (converting from flood irrigation to sprinkler), water quality monitoring, or off-stream stock watering, among others. Additionally, the Council seeks to provide outreach and education for all ages; one, because we believe that educating and inspiring our youth is vital for promoting responsible use by future residents, and two, because "Watershed" Continued on page 5...

Meet the Board Member James M. Young

Vice President, Powder Basin Watershed Council Board of Directors

by Anna Morgan, PBWC Staff

The Powder Basin Watershed Council You regional, state, federal, and private interest groups and depends widely on a diverse membership base to effectively support our local communities. With the help and expertise of many volunteers and dedication of Board members, the Council is able to achieve its mission to promote, restore, and enhance the health of the watershed through the cooperation of all stakeholders. Among the affiliates of the Council, James M. Young stands out for his long-term commitment as Council member and acting Vice President of the Powder Basin Watershed Council Board of Directors.

Young, often referred to as "Jim" by fellow council members, represents the spirit and purpose of the Council in his work and personal life, in that stewardship and hard work are deeply ingrained in his values. Jim was born and raised in Pine Valley on an 189 acre farm next door to his current home near Halfway, Oregon. His mother Dolores Young née Huff is the daughter of Gladys Huff née Oliver, a Pine Valley 1870s pioneering homesteader whom Oliver Road is named after.

When Young graduated from Pine Valley High School in 1967, he was appointed to the US Merchant Marine Academy at Kings Point, New York. He reflects on his time in the Marine Academy, "I saw the Atlantic Ocean before the Pacific Ocean...I spent one year in New York and another sailing the Pacific Ocean." After traveling the world, Young returned to Eastern Oregon where he studied



A scenic view of the Powder Basin Watershed

Biology at Eastern Oregon University.

An avid fisherman and outdoorsmen, Young has always embodied a certain curiosity and love for nature. He recalls his fondest childhood memory: "My first fascination with nature occurred when I was about eight years Young became a member of the Powder Basin Watershed Council in 2002 as a representative from the Pine District Forest Service. At that time he was filling in behind the Pine District Hydrologist, Mark Fedora, who had been involved in the original council organiza-



Jim Young at his Pine Valley home

old. I was lying on my stomach on my Aunt Ella's bridge over East Pine Creek staring at a pair of steelhead finning in the clear water below me. My mother had told me they had swum upstream all the way from the ocean. It opened up a wider world to me. I chased and watched salmon and steelhead in the streams of Pine Valley until 1967 when the Hells Canyon dam blocked them from Pine Creek." His fascination for biology and nature is what eventually informed his career pathway.

Receiving his BS in 1982, Young became a Natural Resource Manager with the USDA Forest Service where he could work in nature while performing valuable duties for his surrounding community and the natural world. During this time, he acted in many jobs including; firefighting, multiple resource inventory, engineering survey and road construction, timber management and sale administration, range/grazing management, fish and wildlife management and National Environmental Policy Act (NEPA) compliance.

tion, the Baker County Water Advisory Board, since 1991. He explains why he was initially drawn the Council,

"We both supported ecosystem management on the watershed scale and saw the Council as a place where all the stakeholders in a watershed could come together to coordinate work across ownership boundaries. Our successful completion of watershed and subbasin assessments has given us the tools to accomplish coordinated work on an ecosystem scale."

In 2007, Young retired from the Forest Service but decided to continue with his work in the Council because he felt that "the Council is the only organization in Baker County that provides a neutral place where all the different interest groups (private landowner, state, and federal land managers, county and local governments, regulatory agencies, resource users, and preservationists) can come together to support projects." In 2008, the Council transitioned from the Baker County Watershed to the non-profit 501(c)(3) it is today, and Young took over as a member of the Board of Directors in

"Community" *continued from page 6...*purposes, however, this can be restored with some effort.

Williams serves not only as an example to the community but also as inspiration for community members who have reservations about starting their own restoration work. He can attest to the painless process of the CREP Program and hopes others will also find solutions to their water issues. When asked about the benefits the program has provided for him,

Williams states, "The financial incentives provided offset the loss of grazing income, and the benefit to wildlife, and the total environment, cannot be measured. There has been a dramatic improvement to the streamside habitat, and the resulting bank stabilization has prevented further erosion in this area.

Currently, Williams is one of the many "residents in Pine Valley that are working to enhance their watershed. Investments have been made to improve irrigation efficiency, enhance stream banks, and improve fish passage. However, flooding and bank erosion, sediment and debris flow, water quality and quantity, and loss of fish and riparian habitat remain problems.

The Pine Creek watershed still needs help, both by individuals as well as the combined efforts of the whole community. If you manage land along a creek, your thoughtful stewardship will benefit your stream as well as those downstream from you. The following goals are based on stream surveys conducted in 2010 and 2012 as well as reports from River Design Group and Nancy Rorick Consulting.

Stewardship

- 1. All riparian areas should be fenced or managed in a way that prevents damage to woody plants. Degraded riparian sites should be re-vegetated, either through promoting natural recruitment or planting. Severely degraded banks should receive bioengineering treatments designed to promote bank stability and support strong riparian community.
- 2. Large wood structures should be used to slow water velocity, trap

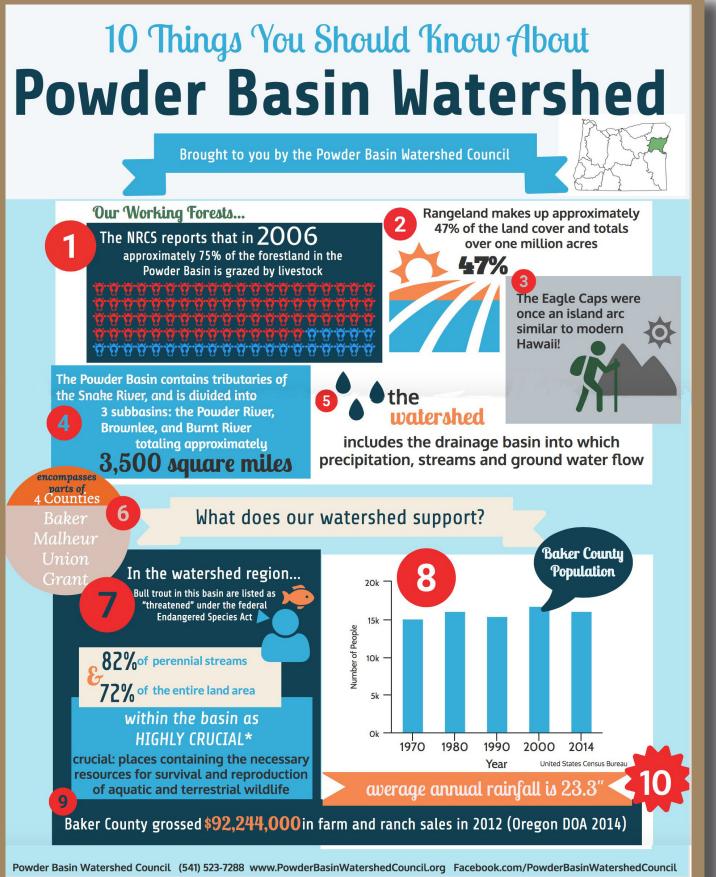
sediment, and reestablish pool-riffle sequences where needed.

- 3. In the forest and upper reaches of Pine Creek, sediment loads entering the creeks need to be addressed. Areas that in which historic mining activity has not been addressed may be contributing to downstream flood events. Where possible, well-vegetated floodplains that can trap sediment and store floodwaters should be established.
- 4. Barriers to fish migration and uscreened

diversions need to be addressed to ensure healthy populations of native fish.

5. Opportunities to increase the system's drainage capacity need to be identified. Flood relief treatments such as retention ponds, floodways, side channels, wetlands, and tributary overflow streams will require a basin-wide approach with participation from the whole community in the planning process."

Powder Basin Watershed Council Pine Creek Stewardship Guide 2012



Featured Classroom

Baker High & Baker Middle School

Exploring the Ecological Role of Fire

by Anna Morgan, PBWC Staff

Allacross the Powder Basin watershed, elementary schools, high schools, and middle schools look to the Powder Basin Watershed Council for ways to get involved in conservation activities. Whether it's water quality monitoring, participating in river cleanups and riparian plantings, or leading restoration projects, students are eager to help their community and take part in handson activities outside the walls of school classrooms. On October 19th, over ninety students and educators from Baker Middle School and Baker High School approached what they saw as an opportunity to help their community in light of recent events.

In the wake of extreme summer wildfires, a blackened landscape is left behind. The charred remains of dense coniferous forests stand as a reminder of the intensity and scale of damage caused by the fire. Trees were killed so quickly that singed needles remained intact instead of burning off and falling to the ground, almost like a snapshot in time. Jana Peterson, a

forester with the Oregon Department of Forestry, recollects "the roar of the fire, the unreal looking red-orange flames and the volcanic-like column of smoke coming off it... unforgettable." What Peterson was describing happened close to home for Baker County. Known as the Cornet-Windy Ridge fire, it burned 103,877 acres, many of which were maintained by private landowners. Not only do these landowners now face many difficulties restoring burned properties, they are also faced with having few resources available.

Climatologists across Oregon are projecting little snowpack and even drier conditions for the 2016 year; therefore, drought, erosion and runoff pose a challenge for recently burned areas. In fact, researchers are suggesting the possibility of forest-type shifts in future years. If fires continue at this rate, shrubby vegetation is likely to take over as the primary species in once coniferous-dominated forests — like those of Eastern Oregon.

Robert Scheller of Portland State University, who leads the Klamath Climate and Wildfire study, explains: "It's the little trees. Those are the ones that really get hammered by drought. And so if you get a big wildfire, then you get some droughty years following

that, that's where you get the replacement with shrub chaparral."

With the deck stacked against them, landowners must reforest their properties and face yet another problem: there isn't enough seed. Access to seed stock is limited and on priority basis, so few small acreage landowners will get the much needed seedlings next spring.

While understanding that reforestation is crucial to restoring our forest viability and maintaining the health of our watershed, and with guidance from Oregon Department of Forestry and Powder Basin Watershed Council, Baker High School and Middle School decided to do something about it.

Educators Sharon Defrees, Baker
High School Advanced Biology Teacher,
and Nicole Sullivan, Baker Middle School
Science Teacher, began planning a field trip
that would expose students to burn sites as
well as provide a valuable lesson in land
management and conservation. Early on a
recent rainy Monday morning, two busloads
of students enthusiastically packed up and
set out for Dooley Mountain, just 16 miles
southwest of Baker City.

Arriving at their first stop, students anxiously poured out of the buses and were confronted with one of the most extreme examples of wildfire aftermath they had ever witnessed. One student described the scene as "incredible" while others scanned the area for scorched remains of wildlife unfortunately caught in rapidly moving fire.

After a short hike in a strange world of twisting, blackened ponderosa pines, heavy fog, and new grass shoots emerging from ashen soil, the students focused their attention on Peterson, the Incident Commander for the Cornet fire. Peterson recounted her experiences with the Cornet-Windy Ridge fire, explaining to students that this fire was unique, that "Cornet-Windy was the kind of fire you learn about as a first year firefighter in fire school that you never expect to experience in real life." Students were amazed and proceeded to hear about Peterson's experiences, giving them insight into a career in natural resource management or firefighting.

Next the students headed to Philips
Reservoir for lunch and a lesson in tree
identification and cone collection. Leading

"Classroom" continued from page 4...
this activity were Powder Basin Watershed
Council staffers Anna Morgan and Meghan
Rorick. Morgan and Rorick highlighted three
species most valuable to Eastern Oregon
forests – the Ponderosa pine, Douglas-fir, and
Western larch or Tamarack, while providing
samples and species guides for those in attendance. Students learned to identify differences
between healthy and unhealthy trees, to prioritize cones for seeding, and to correctly classify
each desired species of tree in a mixed conifer
forest.

Armed with new forest and fire knowledge, the students headed to the Defrees Ranch in Sumpter to test out their skills. On the ranch, which burned in the Huckleberry fire in 1986, the students were able to view the restoration process in action and assess the stages of forest succession. Here they collected bags of cones which were taken back to the school greenhouse to be sorted and dried.

Defrees highlighted many important lessons students learned that day, which included creating an awareness of proper forest management techniques. Going forward she will focus her attention on the school's goals. "We plan on planting the seeds, growing them this year in the greenhouse, and in the spring, the high school and middle school students will work with elementary students to teach what they have learned and plant the seedlings," she said. These seedlings will be offered to landowners hoping to reforest their properties the following years. Encouraging students to work together across all grades helps form a better understanding of how together Oregonians can responsibly manage forests and deal with wildfire in the future.

Peterson drives this point home in an interview with Powder Basin Watershed Council: "In the months after the fire, I think we're all learning a lot about post-fire forest management and salvage logging... helping younger generation understand all of the different perspectives and management ideas is important." Dealing with changing climate conditions and fires will continue to be a learning process for all, but creating awareness at the most fundamental levels in younger generations can be a great start.

If you would like to read more about foresttype shifts, you can do so on the Oregon Public Broadcast website, Climate Change, Wildfires Transforming the NW Forests by Jes Burns, OPB/EarthFix



Baker High School students sorting cones after collection at Baker HS Nursery, Photo by Sharon Defrees

"Watershed" continued from page 1...

crucial to the current health of our watershed.

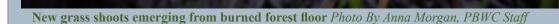
The Watershed Council and Board members are volunteers, and much of our work would not be possible without the continued support and hard work of all our volunteers. If you wish to learn more about the Watershed Council or how you may become involved,

please don't hesitate to contact us. Our Council meetings are held the first Wednesday of every month at 6:00 pm in the Baker City School District Building. All are welcome!

For more information please call us at (541) 523-7288



Virtue Flats, Photo by Meghan Rorick, PBWC Staff



Meet the Community

Managing the Streamside for Cattle and Wildlife "The David Williams Approach"

by Anna Morgan, PBWC Staff

David Williams, Halfway resident and Oregon Licensed Building Contractor, talks to the Powder Basin Watershed Council about his land, his livestock, and his life in the Pine Creek subbasin.

David Williams has been living on his farm in Halfway since 1997. His primary vocation is construction, however after an accident in 2006, became disabled. Following a spinal surgery in 2010 he has been able to return to work on a limited basis. Because of various life experiences, he serves on the Pine Eagle Medical Clinic Board of Directors and the Tarlov Cyst Disease Foundation Board of Directors. Williams also spends his time working for political advocacy measures like better background checks for gun purchases and producing hay, forage, and grain.

"Seven years ago, David Williams knew he had a problem. His cattle had beaten down the riparian areas along Pine Creek looking for shade, and his neighbors were distressed when their garden was trampled after the cattle broke through the fence.

Working with the Baker City Natural Resource Conservation Service (NRCS) office, he decided to enroll twelve acres in the Conservation Reserve Enhancement Program (CREP). NRCS employees determined the line of the fence, which creates a buffer of about 300 feet between the pasture and the creek. David built a fence, and CREP allowed a flexible design that incorporates a split rail fence on one portion, allowing wildlife passage to the creek.

As part of the program, David has a ten year contract with the NRCS which compensates him for the lost grazing opportunity. Since installing the fence, he has seen a significant improvement in the vitality and diversity of his riparian plants. He has also seen a dramatic stabilization of the stream bank.

The improved habitat now attracts wildlife, with elk being attracted to the riparian area. David found the CREP process painless and the NRCS staff easy to work with. The project has worked out financially as well, and now that his cattle have stopped crossing the creek, relations with his neighbors have improved too"

That was an excerpt from the Pine Creek Stewardship Guide written in 2012. Today, almost ten years after the restoration work, the Powder Basin Watershed Council wanted to check in with Williams for an update on cattle, neighbors, and his small slice of Pine Creek. Williams first approached the Council at the Summer Pine Fest Music Event in his beautiful little home town of Halfway.

Over folk music and the alluring smells of festival food stands, Williams described his experience with the restoration project as "highly successful" and "totally worth it." His enthusiasm about his success of changing land management practices speaks volumes to the possibilities for other distressed landowners in the Pine Creek subbasin.

When Williams first bought his Pine Valley farm in 1997 the property was in rough shape, Williams explains that "It has required a great deal of work clearing decades trash deposited on the ground, clearing brush, rebuilding fence lines, and improving the irrigation systems. The first three years here I never produced more than 70 tons of hay per year. I now produce nearly 300 tons of hay, in addition to more than 200 aum's of grazing."

Williams, like many community members in the basin are proud of their quaint, rural town, nestled at the foothills of the Wallowa Mountains, where snowmelt brings clean, cool, rushing water year-round. They feel blessed to be able to live in a community where livestock and farming are at the forefront of the economy and family values and hard work are commonplace. But at the same time, landowners face some serious water problems: high sediment loads, channel widening and straightening, flooding, and erosion. Many lament the next big flooding event or losing even more pasture



David Williams on his property in Halfway Oregon

to rushing waters. Residents hope to see changes happen soon.

Williams, being a steward of the land, recognized that stream degradation can be further exasperated by excessive grazing in riparian areas. In fact, heavy grazing can totally eliminate useful vegetation and allow noxious weeds a place to grow. Williams understood that by fencing off cattle from Pine Creek, he was also creating healthy riparian vegetation, reducing widening and improving bank stability.

The problem with straightened channels is that as water passes through, it picks up velocity that would normally be distributed by meandering. The higher the velocity equates to erosion occurring more rapidly and with greater force limiting the stream's ability to store water. Historically, ranchers and farmers have used channel straightening as means to control water for agricultural

"Member" continued from page 2...

2012

Since the change of the Council's organizational structure, Young would like to see PBWC use its strengths as an efficient project development and implementation entity to attract new ideas, people and funding for projects that are effective on a watershed/ecosystem scale. He explains that:

"There are many organizations in Baker County that represent local natural resource interests (Soil and Water Conservation Districts. Irrigation Districts, Mining Associations, Livestock Associations, Timber Associations) or serve local interests (Farm Services Administration, NRCS, County Extension Service). Local interests and viewpoints are not necessarily the same as regional or national viewpoints. The council is a place where these opposing desires can find a consensus or compromise at the local level. If Baker County does not find a path acceptable to the people outside Baker County, then their viewpoint will be imposed on us. The Powder Basin Watershed Council is the only organization in Baker County that can provide a place to reach that consensus."

Today Young is an amateur botanist and member of the Native Plant Society of Oregon (NPSO) and finds himself pondering about the inner workings of ecosystems. He coauthored the 2012 Brownlee Subbasin Assessment and chaired the oversight committee for the Pine Creek Reconnaissance Report. Soon he will be writing a monthly column on the hydrology of Pine Creek for the Hells Canyon Journal. He has many goals for the Powder Basin Watershed Council and would like to see people who have a passion about the natural world and making a difference in their community to find their place on the board with him.

When asked about why others might want to join the Council, Young says, "Those whose livelihood or work depends on natural resources should be on the board to promote their self-interest. The healthier watersheds mean more natural resources for users. People who are curious about the natural world can learn more as a board member and about the watersheds of our region."

Lastly, Young hopes to preserve the watershed well into the future, recalling his earlier childhood memory on East Pine Creek,

"I want to see salmon and steelhead back in these streams. I hope my grandchildren will be able to lie on that bridge and experience that same wonder."

Calendar of Events

December 2015

• December 2, 2015, Wednesday- Monthly Council Meeting

5J School District Building, 6:00pm

Speakers: Ralph Meyers, Idaho Power Company Water Quality Section Leader, and Steve Brink, Idaho Power Company Senior Fisheries Biologist to discuss the Snake River Stewardship Program and the Tributary Habitat Enhancement Program

January 2016

• January 6, 2016, Wednesday- Monthty Council Meeting

5J School District Building, 6:00pm

Join us for our "Birding with Buddies" meeting, where the Council will discuss the birds of Eastern Oregon, where and when to find them.

February 2016

• February 3, 2016, Wednesday- Annual Council Work Meeting

5J School District Building, 6:00pm

The council will be working on its annual work plan, all Council members and Board members are encouraged to attend.

All community members are welcome to attend our meetings, for more information please contact the Council at pwbcoutreach@qwestoffice.net or call 541-523-7288

We want to hear from you!

Would you like to be a part of the strategic planning process? How about helping the Council determine how we can better help meet our community needs? You can help us by taking a quick survey online at:

https://www.surveymonkey.com/r/HP5DL6W



Join Oregonians for a day of giving on 12/1/15

To donate to the Powder Basin Watershed Council non-profit go to our website at:

powderbasinwatershedcouncil.org or directly through Paypal



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