

Okanogan Watershed Plan Adopted

By Craig Nelson, OCD

Okanogan County Commissioners held a public hearing on April 6, 2010 to hear public testimony about the Okanogan Watershed Plan. Members of the Okanogan Watershed Planning Unit were in attendance along with Okanogan Conservation District staff who were involved in the development of the plan.

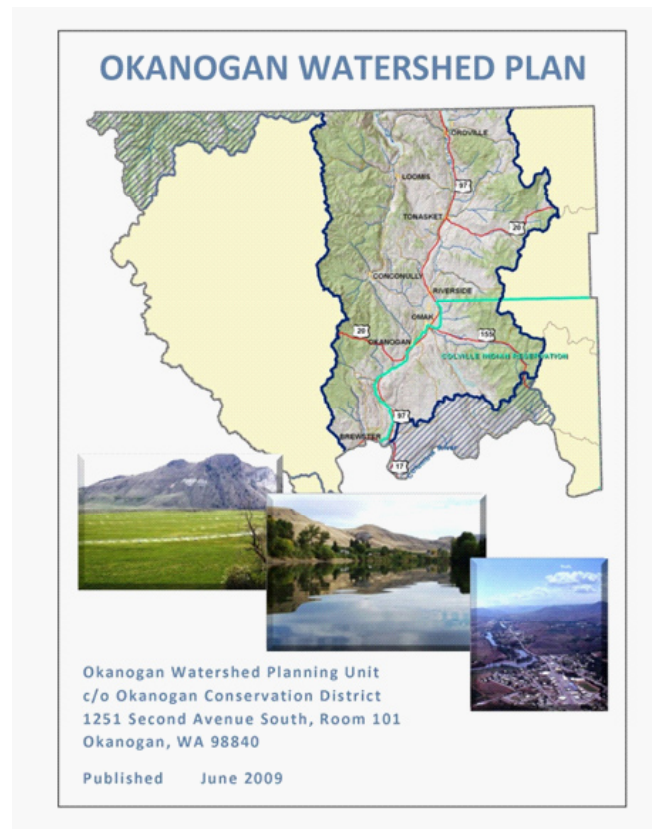
District staff gave a brief synopsis of the development of the plan including the timeline, selection of Planning Unit members, development of the project scope, number and duration of public Planning Unit meetings, and summary of intent of the plan as developed and approved by the Planning Unit. Okanogan County Commissioners asked District staff questions about various aspects of the plan and the process then invited members of the audience to give testimony.

Jerry Barnes, Whitestone Reclamation District Manager and Planning Unit Chair, thanked the Commissioners for their leadership to start the process and throughout the plan's development. He added that the plan could not have been completed without the tremendous dedication of Planning Unit members.

Several members of the Planning Unit, and the County Commissioners thanked the Conservation District for serving in the role of lead entity. The District initially turned down the role, but chose to take on the critical part of the process.

After everyone who wished to speak was given an opportunity, the Commissioners closed the hearing to further public testimony. Commissioner Peterson thanked all of the Planning Unit members

for their dedication and giving of their time to such a long and sometimes difficult process. Commissioner Lampe said, "A plan written by citizens is better than a plan written by others." He echoed Commissioner Peterson's thanks to all involved. The Commissioners unanimously approved (Commissioner Hover was absent) a motion to adopt the plan and directed staff to develop a resolution to formally adopt the plan.



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OKANOGAN COUNTY EXTENSION

Okanogan Conservation District
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Resource Quarterly

2009 Grants

Backyard Conservation & Small Farm Implimentation
 BPA – Okanogan Livestock Watering
 Bonaparte Creek
 Conservation Reserve Enhancement Program 09-10
 Fire Rehabilitation
 Firewise
 Implementation 09-10
 Irrigation Efficiencies 09-10
 Livestock Technical Assistance 09-10
 Livestock Cost Share 09-10
 NRCS Task Orders
 Okanogan Gauging
 Watershed Planning Phase 3
 * Water Quality
 * Instream Flow
 * Storage

2009 by the Numbers

Total Expenditures	\$1,000,448
Cost Share Distributed	\$317,728
Plants Distributed	13,640
Acres of Riparian Restoration	8.1
Troughs installed	34
Fencing built	23,494 ft
Pipeline installed	26,120 ft
Water/Spring Developments	13
Crossings/Harden Access	3
Plants planted	2,521
Live Bush Mats installed	277 ft
Corral Relocation	1
Conservation Plans	110
Streams Sites Gauged	248
Technical Assistance	145 landowners
No Dumping signs installed	5

Congratulations, Cooperator of the Year!

US Armed Forces Legacy Park Project - Kelly Kinney, OCD

In 2009, OCD worked with members of the Veteran Legacy Project in Tonasket to implement riparian restoration along Bonaparte Creek. The area of concern was in the process of being turned into a veteran's memorial park, a highly visible location in downtown Tonasket that would see lots of foot traffic. The riparian habitat along the creek was severely disturbed and full of invasive plant species as well as non-native elm trees. With cooperation from the members of Legacy Park, the District, and a grant from Washington Dept of Ecology, we were able to restore the riparian area. This included site prep, planting, watering, monitoring, and multiple visits to the site pre and post project implementation. Members of Legacy Park (Rodger Castelda, Hugh Maycumber, and George Frank just to name a few) volunteered many hours to help with prepping/clearing the site, planting native vegetation, maintaining the drip irrigation system and installing the information kiosk. The members didn't stop when funding ran out either; they went on to remove the invasive elms along the creek, seeded a grass filter strip and have plans in the works for a foot bridge, picnic area, and possibly a nature trail. All in all, over 150 native trees and shrubs were planted in a 4,600 sqft area along Bonaparte creek, one irrigation system was installed, and one information kiosk focused on water quality was constructed. Anytime a site visit needed to be scheduled or additional labor was needed the members of Legacy Park were there to help in any way possible. This project involved many members of the Tonasket community and will hopefully lead to future projects down the road.





Okanogon Valley Land Council

The Okanogon Valley Land Council (OVLC) is a group of people dedicated to preserving the region's rural way of life by protecting working land, open space and wildlife habitats. Through voluntary conservation easements and local community action, we're helping to improve the economics of open space so we can continue to enjoy the values it provides.



OVLC helps local landowners maintain their open space through conservation easements. A conservation easement is an agreement that funds the long-term protection of open space, working lands or wildlife habitat area while allowing the owner to continue to own and use the land. Agreements are individually tailored to protect the natural values important to the landowner. We have the opportunity to maintain the Okanogon Valley for our generation, or children's and generations to come.

The Okanogon Valley offers unique recreational, economic and environmental opportunities for the people of the Valley and the State to enjoy and it is one of the few places in Washington State that still has the opportunity to keep its communities and rural way of living intact. This means keeping up with new information and finding a helpful role for everyone.

The OVLC provides educational events and opportunities to work on projects that enhance and conserve the natural beauty of the Okanogon. Volunteers are the backbone of the organization and provide valuable time and skill to the success of the organization. Our newly launched volunteer program is designed to make volunteering for OVLC a rewarding experience by sharing the care and stewardship of the land with others. Educational events offer another way to share the Okanogon in a meaningful way. An upcoming event is the North Central Washington Audubon Society's Birdathon on May 23rd.



Contact the OVLC office for more information at ovlc@communitynet.org or 509-486-2765. Or find us on the web at www.ovlandcouncil.org.

Sharing resources

The Okanogon Conservation District is offering newsletter space to the Okanogon Valley Land Council and the Methow Conservancy along with the District's previous teaming with the Washington State University Okanogon County Extension. By sharing resources like the newsletter, these organizations hope to better inform and reach more residents of Okanogon County.

Methow Conservancy "1st Tuesday" Monthly Programs:

The Methow Conservancy sponsors a "First Tuesday Lecture Series" in which a different speaker presents a natural history, conservation or community-focused program every month. Generally "First Tuesday" lectures are held on the first Tuesday of the month from 7:00 to 8:30pm. The place varies so please check each event for the location. All "First Tuesday" lectures are free and open to everyone. For more information contact Mary at 996-2870 or info@methowconservancy.org, or visit www.methowconservancy.org.

Birds and their Habitats of North Central Washington

Tuesday, June 1st, 7 -8:30pm at the Twisp Grange

Ken Bevis, a biologist with the Washington Department of Fish and Wildlife, will explore what birds mean to people through the ages and now. He will take us on a visual and auditory tour of key habitats and bird species of our region, including shrub steppe, forests and alpine. Birds as harbingers or actual sources of conservation challenges will be examined as well. He might even perform a song! Refreshments will be provided.



Grizzly Bears and the North Cascades

Tuesday, July 6th, 7 -8:30pm

Location TBA. David Knibb, author of Grizzly Wars, will discuss the current efforts to recover grizzly bears in the North Cascades which is designated as a grizzly bear recovery area. Come and ask questions such as, are grizzlies still in the North Cascades? If so, how many, what are they doing and what might their future be? David will sell and sign copies of his book as well.



Classroom in Bloom

Tuesday, August 3rd, 7-8:30pm at the Classroom in Bloom garden at the Liberty Bell campus. Join us for a tour of the amazing "Classroom in Bloom" schoolyard garden at the Liberty Bell campus. See and learn about how this program teaches kids of all ages to grow and enjoy healthy food. Wood fired pizza and garden fresh veggies baked in the outdoor cob oven will be available for sale.



Predicting Earthquakes and Volcanic Eruptions

Tuesday, September 7th, 7-8:30pm

Location TBA. Steve Malone, a Seismologist and a "distinguished lecturer," will talk about the ways and differences in how volcanic eruptions and earthquakes are predicted, and what is fundamentally different about earthquakes that make them so hard to predict.



Also, don't miss the annual Conservation Fair

Saturday, June 26th, 9am – Noon at the Twisp Commons next to the Farmers' Market

Join the Methow Conservancy and many other organizations for fun, interactive and kid-friendly activities and booths on wildlife, plants, rivers, land stewardship and much more. Get lots of helpful information for your own property, and let kids explore and play. Come anytime during the Farmer's Market for as little or as long as you'd like. The event is free and open to everyone. For more information, contact Mary at 996-2870 or info@methowconservancy.org.

- Take home native seed packets and other great tools for conservation and stewardship.
- Play with the "Rolling River" interactive river and floodplain model.
- Test yourself and challenge your friends to Methow trivia contests.
- See and touch wild animal skins, skulls, claws and tracks.



Tips on Proper Watering and Conservation

Be Water Wise Outdoors

Okanogan Conservation District



Why Conserve?

Wise use of water is a good idea for many reasons. On a grand scale, it protects our environment and preserves this precious natural resource. On a personal level, it saves you money by reducing your water bill. As a community, water conservation will lengthen the life of your county's water delivery system because less stress is placed on the system.



Ways to Conserve Water in Your Lawn

Over half the water we use in the summer goes to water our lawns and other thirsty plants. By watering efficiently in the landscape, you can help to keep the city's water use within the system's capacity and also reduce your summertime water bill.



Water Early

Water during the cool part of the day, to reduce evaporation. The best time to water your lawn is early morning. Deep water shrubs in evening hours.

Adjust Your Watering Schedule

The amount of water your lawn requires varies from week to week and month to month. Lawns seldom need to be watered during April. In most instances, start watering in mid-May to early June.



Know Your Plants' Water Needs



Different plants and turf grasses require varying amounts of water. A healthy, growing bluegrass lawn will require about one-half inch of water per week in early May and one to two inches per week during the mid-summer months. Adjust watering to include rainfall.

include rainfall.

Measure Sprinkler Output

Measure your sprinkler output by placing three or more cans in various locations throughout the sprinkler pattern. Turn on your sprinkler for fifteen minutes. The average depth of water in the cans will tell you how much water the sprinkler has applied.



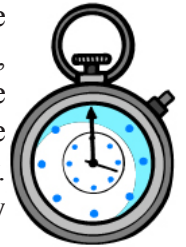
Check Your Sprinkler Coverage

Make sure your sprinkler waters just the lawn. Water on sidewalks, driveways and streets is a waste. Avoid run-off by reducing the volume from the sprinkler heads close to the street. Avoid watering on windy days.



Adjust Your Sprinkler System

Underground automatic sprinkler systems should be adjusted to accommodate changes in seasonal water demand. Remember, they are semi-automatic and require periodic checks throughout the summer. If you have an automatic system, adjust the time clock as the temperature changes to give your plants only the amount of water they need to stay healthy. If you have a manual system, carefully watch a clock or set a kitchen timer.



Know Your Soil Type



Underground automatic sprinkler systems should be adjusted to accommodate changes in seasonal water demand. Remember, they are semi-automatic and require periodic checks throughout the summer. If you have an automatic system, adjust the time clock as the temperature changes to give your plants only the amount of water they need to stay healthy. If you have a manual system, carefully watch a clock or set a kitchen timer.

Water Efficiently

Use a sprinkler that throws large drops of water close to the ground. Sprinklers which throw mist or small droplets of water high in the air, result in excessive evaporation. Traveling sprinklers are among the most efficient.



Deep Soak Your Lawn

Water once or twice a week, allowing time for the moisture to soak down to the roots (6-8 inches). Frequent light waterings encourages shallow root growth. Shallow root systems are not tolerant to drought. If your soil type will not allow you to deep-soak your lawn, split your watering times into two or more blocks to allow the soil to absorb the water.

Aerate Your Lawn

Aeration loosens soil and reduces compaction. After aeration, more water will reach the roots, resulting in less run-off. Aerate your lawn once or twice a year.



Only Water When Your Lawn is Dry

Don't water every day. Stick a screwdriver into the soil. If it offers little resistance to a depth of 6 inches, the soil has adequate moisture. Another simple test is to step on the grass. Grass will lie flat if the moisture is low. If the blades bounce back quickly, wait a day or two to water. Pay attention to the color of your lawn. When it is under stress it will change color, becoming more blue-green.



Plant Water Wise

While these tips are for lawns, you can save water outdoors by planting a water-conserving landscape. There are hundreds of low water use/drought tolerant plants. The OCD has an annual native plant sale in March. Brochures are available at the County Fair in September. For more information, contact Laura Clark at 509-422-0855 ext 127.



Featured Publication: Organic Alfalfa Management Guide

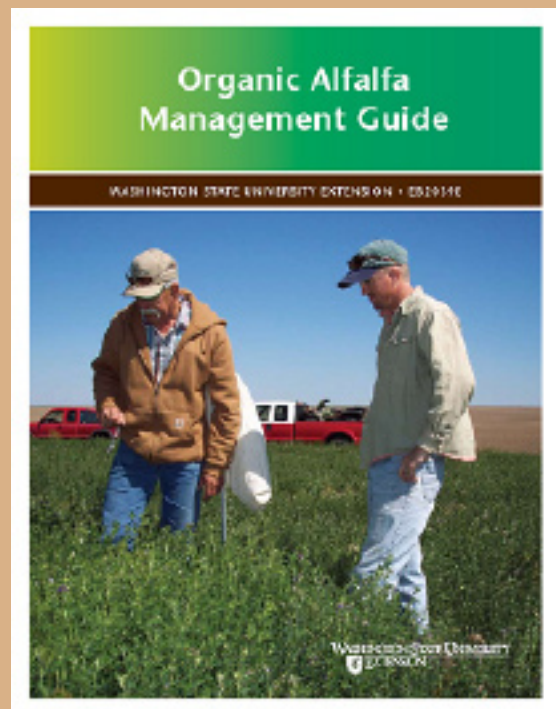
WSU Okanogan County Extension

Looking to switch to organic alfalfa production? This management guide details the considerations



and procedures for doing so. Organic alfalfa producers must follow rules established by USDA National Organic Program, but this guide also covers the other aspects of production including the more intensive monitoring of pests, weeds, and fertilizing that is required.

Associated with this bulletin are online, interactive spreadsheets where you can calculate your own costs and returns to determine profitability. The publication EB2039E is available for free download at <http://pubs.wsu.edu>





Dept of Ecology Begins Rule Making for Agricultural Burning Fees

-Okanogan Conservation District



Information from the WA Dept of Ecology

Farmers sometimes burn crop residue after harvest. Some examples of residue are cereal grain stubble and cut-down orchard trees. Smoke from this burning can harm the health of people who breathe in the smoke's harmful particles and toxins. If this smoke is carefully managed, impacts to the public are limited and burning remains a valuable tool for farmers. If the smoke is not managed well, people can be exposed to harmful levels of smoke.

Ecology regulates agricultural burning to protect public health while keeping burning available as an important tool for farmers. Ecology's Air Quality Program does this through its smoke management system. This system operates seven days a week, including holidays, to help farmers – a substantial investment in effort and support.

Permits and fees for burning

Growers must have permits to burn most types of agricultural residue. The 2010 Washington Legislature amended the law (RCW 70.94.6528) that authorizes a permit fee for agricultural burning. The change raises the permit fee cap from \$2.25 per acre to a maximum of \$3.75 per acre. This is the first increase to the fee cap since 1991.

The Legislature also approved a new way to assess fees. Fees can now be assessed for pile burning instead of on a per-acre basis. This new fee is capped at \$1 per ton of material burned. The Agricultural Burning Practices and Research Task Force (Task Force) will set the amount of the fees under the new caps. The current fee for agricultural burning is \$2.25 per acre.

How the new fees will work

In May and June 2010, the Task Force will meet to discuss both the amount of the new fee for the per-acre fee cap, and the amount of the fee per ton of material burned. After the Task Force sets the fees, Ecology will establish them in rule (WAC 173-430). **Ecology expects the new fees will take effect for the January 2011 burning season.**

How this will benefit Washington

Increasing fees will help ensure Ecology can continue to provide needed, quality smoke management support for farmers and citizens 365 days per year. This will help limit the effects of smoke on public health.

More information

See the Air Quality Program's agricultural burning page: http://www.ecy.wa.gov/programs/air/aginfo/agricultural_homepage.htm

Summary of major changes:

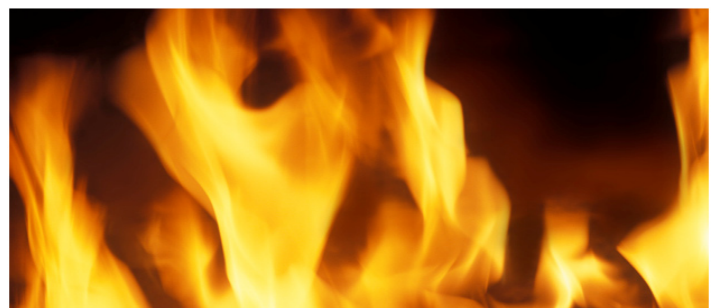
The cap on agricultural burning fees increases from \$2.50 to a maximum of \$3.75 per acre. This allows the Agricultural Burning Practices and Research Task Force to set fees at or below the cap and adjust them up to the cap in future years. This provides on-going support for Ecology's smoke management system, now and in the future.

Instead of charging all agricultural burning fees on a "per-acre" basis, the change adds a "per-ton" fee for materials collected and burned in piles. The law caps the "per-ton" fee for pile burning at \$1.

The Task Force still has fee-setting authority. Ecology will establish fees in rule after the Task Force sets the amounts.

Contact information:

Karen Wood
509-329-3469
karen.wood@ecy.wa.gov



Grass – Securing Your Soils

By Laura Clark, OCD



If your property slopes it will be prone to runoff from rain and snow melt. Even if there is no real visible slope to the land, water and nutrients can run out of a vegetative area into areas where it is wasted or detrimental. Water runoff will also cause erosion if it is traveling across loose soils.

Securing your soils with grass or other vegetation will save your valuable top layer of soil, which is rich in nutrients that sustain plant life. Once that top layer is gone, you would need to add nutrients in order to establish further vegetation. It takes approximately 500 years to create one inch of soil. It can be lost in a matter of minutes if it isn't protected.

Runoff carrying soil can build up on roads and in ditches, clog up storm drains, and pollute a waterway, which reduces the oxygen for aquatic life.

Establishing grass or other vegetation in bare areas not only reduces erosion, it also filters any nutrients you may have applied to the vegetation. Although those nutrients, fertilizers and herbicide controls, may be beneficial for the lawn, it can be extremely detrimental to aquatic life in waterways and some other vegetative species if not properly applied and managed.

Ground cover, vegetation covering the bare soil, is necessary to keep your soils intact. Even in the smallest of areas this can be important based on where the eroding soil travels from that spot. It can also be an outlet from your established vegetation to the storm drain or waterway. Did you know nearly every storm drain in our county travels directly to a waterway? So don't overlook even the smallest bare patches in your yard.

Remember: It is not dirt, it is soil. Soil is important for living things. Dirt is something you track into the house on your shoes.

2010 Farm Walk Schedule Education for Farmers by Farmers

- WSU Okanogan County Extension

Tilth producers of Washington and WSU Small Farms Team recently presented the 2010 Farm Walk Schedule. This is a series of half day farm walks around the state of Washington that showcase smaller scale sustainable farming enterprises. Going into it's seventh year, the farm walks bring growers and agricultural specialists together to learn on working farms. Nine walks have been scheduled and are already underway. The schedule is:

April 26 – Black Sheep Creamery, Chehalis

May 10 – Hedlin Family Farm, La Conner

May 24 – Lay R Ranch, Cheney

June 7 – Tonnemaker Hill Farm, Royal City

June 16 – WSU Field Day and Organic Farm, Pullman

July 26 – WSU Field Day and Organic Farm, Puyallup

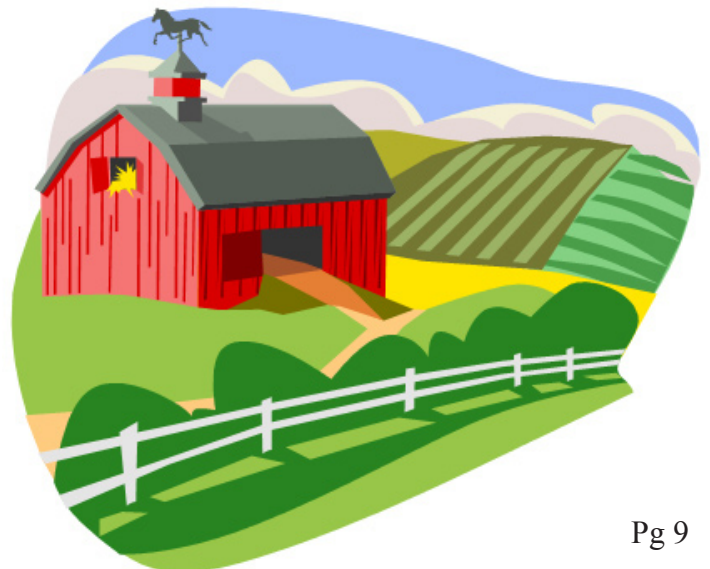
September 6 – Manual Mendoza Orchard, Quincy

September 27 – Filaree Farm, Omak (Make sure you attend this one)

October 11 – Boistfort Valley Farm, Curtis

Descriptions of the farm walks, directions, and links to the farm websites can be found at <http://smallfarms.wsu.edu/farmwalks/2010/index.html>.

Most farm walks start at 12:30 pm and paid pre-registration is recommended. Registration cost is \$10 for Tilth Producers members and \$15 for non-members. To pre-register contact Tilth Producers: 206-442-7620 or nancy@tilthproducers.org.



The Other Kochia: Forage Kochia

- WSU Okanogan County Extension

Washington's livestock industry, much like in other western states, is dependent upon supplemental feeding during the winter because forage during the winter is in short supply and offers very little nutrients. We accept the fact we need to feed hay, but with today's hay prices, wouldn't you like to reduce that dependency? Are there viable ways to delay feeding hay once you're off the range or you've grazed your pastures and fields in the fall? Forage kochia could be a viable alternative. I'm sure the word *Kochia* is sending up some red flags to some readers. But I'm not talking about the familiar annual weed named *Kochia scoparia*. I'm referring to its perennial cousin, *Bassia (Kochia) prostrata*, or better known as forage kochia. What's the difference?



Forage kochia. From <http://kochiaseed.com/> Used with permission.

Like its weedy cousin, forage kochia is adapted to western rangeland landscapes with precipitation ranging from 6 to 16 inches. It adapts to saline soils and can be grown on a variety of soil textures. However, that is where most of the similarities end. A perennial plant, forage kochia shows very little aggressiveness and no tendency to cross-pollinate with weedy kochia. Its growth habits are different; it develops as a semi-evergreen half-shrub reaching 1 to 3 feet in height. It has a very deep tap root as well as a broad fibrous root system. An individual plant can live 10 to 15 years. Sounds like it would do well in much of Eastern

Washington. Research scientists have observed the grazing of this forage in late fall and early winter, a time when our range and pasture forage are of low nutrient value. The Archer Research & Extension Center in Wyoming evaluated 17 forages on range, including forage kochia, wheatgrasses, wild ryes, and legumes, to compare winter forage availability and nutritive value after season-long stockpiling of growth. In November of an average precipitation year, forage kochia produced at least twice the amount of dry matter per acre (DM/AC) when compared with other alternative dryland species (Table 1). In a wet year, its production was similar to the other 16 forages. All species showed low production in a dry year.

The really interesting findings were in the forage quality data. On November 5, forage kochia had the highest level of crude protein (CP) and lowest levels of neutral and acid detergent fiber (NDF & ADF: attributes of digestibility, the lower the better). From November to February, even though forage kochia had the greatest amount of nutrient loss, it still maintained an equal or higher value of crude protein than the other species

(Table 1).

Table 1. Results from Wyoming forage trials.

Species	11/5 CP	2/26 CP	NDF	ADF	Production 11/5
Percent					lbs DM/AC
Forage kochia	9.5	7.7	56.3	37.4	3035
Legumes	8.7	7.7	61.0	50.4	649
Wildryes	6.5	5.6	70.0	45.1	1734
Wheat-grasses	6.1	5.6	67.1	41.5	1471

Does planting forage kochia make economic sense? The only variety available at this time is "Immigrant." Prices can vary year to year and have been as high as \$14 per pound. Results of an economic study out of Utah were published in Rangeland Ecology and Management. Beef cows were grazed on stockpiled forage kochia/crested wheatgrass on Utah rangeland from November to late January for two years. These cows did not receive any protein or energy supplements. Cow performance and

economics were compared between the group grazing on forage kochia/crested wheatgrass to a control group of cows in dry lots fed alfalfa hay. The cows on forage kochia gained in body weight and condition and maintained backfat thickness. The study stated they were in good condition for the onset of calving and return to estrus. Cows fed alfalfa hay also gained body weight and condition during the course of the study. However, there was an economic benefit noted for the grazed cows: the study found that grazing cattle on forage kochia/crested wheatgrass pastures cost about \$20 less per cow than feeding them alfalfa hay over the roughly 80 day study period, averaged over both years.

So grazing cattle on forage kochia can have nutritional and economic benefits. There are some other benefits. It is known that the plant competes well with annual weeds such as cheatgrass and Russian thistle. Since forage kochia stays green most of the year, it has shown very good fire suppression. Public land agencies have used it effectively in greenstrips to help protect native shrub communities and private dwellings from fires. Also, nitrate accumulation has not been reported in forage kochia, unlike its weedy cousin.



I believe forage kochia has very good potential in Washington rangelands and could benefit the livestock industry. The seed is grown in this state but is primarily sold to land management agencies for land restoration. I am currently cooperating with an Okanogan County producer in growing the forage in an applied study. We are into our second growing season and it will take 2 – 3 seasons to get it established. So far, the nutritional

analysis looks very good. In early November, the plots tested at 8-9 percent crude protein and over 80 percent TDN. If you are interested in trying it out for stockpiled pasture, please give me a call at the WSU Okanogan Extension office. There's plenty of time to prepare for a fall, dormant planting.

For more information

Kettle and Davison. Forage Kochia. University of Nevada Cooperative Extension. FS 98-48. http://www.livingwithfire.info/pdf/WEB-Forage_Kochia.pdf (has seeding instructions)

Koch and Asay. Forage kochia-a forage with fall and winter grazing potential. University of Wyoming Cooperative Extension Service. B-1122.5 <http://ces.uwyo.edu/PUBS/B1122-5.pdf>

Waldron et al., 2006. Stockpiled forage kochia to maintain beef cows during winter. Rangeland Ecol Manage 59:275-284.

Calendar of Events

June 3rd	OCD Board meeting
June 9th	Okanogan High Schoolers report on fire impacts from Oden Road Fire. 7pm Omak City Hall
June 12th	Free Fishing Day at Winthrop National Fish Hatchery
June 14-16	OCD Office limited staff due to training
June 26th	Conservation Faire in Twisp
July 1st	OCD Board Meeting
August 5th	OCD Board Meeting



Investigating Insects

Okanogan Conservation District Outreach

- Jenni Remillard, OCD

As the new Conservation Educator at the District, I have been hard at work this spring bringing aquatic insects to area schools. Aquatic insects and their counterparts crustaceans and mollusks are collectively known as Benthic Macro-Invertebrates or BMI's for short. The students listened to a short presentation on BMI's and then rotated through stations to get a closer look. They were able to look at freshwater mussel shells



Caddis fly

from the Okanogan River under a dissection scope, sort BMI's from different streams, compare them to guide books and test the turbidity of area streams. The students looked at insects from Bonnaparte Creek in Tonasket, Johnson Creek in Riverside, and No Name Creek in Omak.



scrapers, collectors, shredders, and predators. Scrapers scrape algae off rocks. Collectors feed on very small organic material and are often filter feeders. There are native mussels in the Okanogan which belong to this group. Shredders break down larger plant material such as dead leaves and predators of course, prey on other animals. BMI's are also an important food source for fish, especially young salmon. Many BMI's are actually the larval stage of insects. Mayflies, mosquitoes, caddisflies, horseflies, and stoneflies are just a few.



Larval and adult Mayfly



BMI's are an important part of the food chain. They help break down organic material in the stream such as dead leaves. BMI's are generally grouped into

BMI's can give clues as to the health of a stream as well. Because BMI's generally stay in the same place their entire lives, they are good indicator species. Indicator species are species that are among the first affected by environmental change. Some BMI's such as stoneflies, are very sensitive to pollution. Others, like snails, have a high pollution tolerance. By sampling a stream and recording what kind of BMI's are found, a general estimation of the stream's health can be made.

BMI pictures from Battle Ground School District
http://www.bgsd.k12.wa.us/hml/jr_cam/macros/default.htm



High pollution tolerance



Low pollution tolerance

Professor Agee Gives Talk on Sustaining Area Forests With Fire

- Bob Clark, OCD

Jim Agee, Professor Emeritus of Forest Ecology, University of Washington, talked about forest fires and their role in sustaining dry forest wildlands at the Okanogan Grange, Tuesday evening, May 18th. The talk was sponsored by the Okanogan Valley Land Council, the Colville Confederated Tribes, and the Okanogan Conservation District.

Professor Agee noted that there are three broad categories of forests based upon the return interval of fire. The long return interval forests are in the upper elevations and on the west side of the Cascade Mountains. Fires in these areas tend to be large, stand replacing fires. Medium fire interval forests are just below these upper elevation forests. Fires in these areas are not as devastating and tend to burn some areas harder than others. Between the medium interval return and the lower edge of the forested terrain are the short fire return interval Douglas fir and ponderosa pine forests.

and loosen the seeds. Some birds have learned that many rodents flee ahead of the fire and the birds will congregate in order to take advantage of an easy meal.



Dr. Agee also spoke about the need to reintroduce fire as a management tool to restore the health of area ponderosa pine forests. He noted that before fire could be introduced, the overly dense stands would need to be thinned and the resultant slash removed so that the remaining fuels could be burned without destroying the larger trees left standing.



Dr. Agee told of how before the advent of fire suppression in the early 1900s, fire was a recurring event that helped the ponderosa pine forests remain healthy and, ironically, safer from fire. The fires that occurred every 5 to 35 years in these forests would burn fuels and dense clumps of young trees, but would leave the larger trees that had thick, fire resistant bark relatively unscathed. The resultant forests had widely-spaced trees which were better able to compete for relatively little precipitation and were better able to fend off insect attacks. He also mentioned adaptations of plants and animals relating to fire. Some trees actually need fire in order to reproduce. The fire will heat up the cones

The Okanogan High School biology class will be doing a long term study on the Oden Road fire. They will be presenting their first year of findings on June 9th from 7 to 8:30 pm at the Omak City Hall.

Watch for High-Energy Pellet Stove Sales Later This Year! The cities of Tonasket, Oroville and Omak are sponsoring low-cost sales of pellet stoves late this summer and early fall for people interested in buying wood pellet stoves. Pellet stoves make use of renewable energy rather than fossil fuels or wood, typically save money on heating, definitely emit far less greenhouse gas emissions than wood, oil, propane or gas and are healthier than alternative heating sources. Watch for more information in July and August.

Okanogan Conservation District
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The Resource Quarterly is published by the Okanogan Conservation District.
Partial funding from Washington State Conservation Commission, the Washington State Department of Ecology, and other various sources.