



Registry News

From the Oklahoma Natural Areas Registry Program

Newly Registered Site Arbuckle-Simpson Ranch, Johnston Co.

The Arbuckle-Simpson Ranch is named for the aquifer that feeds the beautiful springs that flow into the Blue River on this newly registered property in Johnston County. John and Elaine Bruno purchased this property only a year ago with the hope of preserving a portion of Oklahoma's natural diversity.



Priscilla Crawford

The water volume in the Blue River in the spring and early summer is sufficient to produce small rapids in some spots on the Bruno's property.

The Bruno's property contains a variety of springs that were part of a study conducted by Liz Bergey, an aquatic biologist with the Oklahoma Natural Heritage Inventory. According to Bergey, the springs on the Bruno's property are very diverse. Some bubble up through sand, some bubble up through gravel, and some places are only seeps (see "What Causes Seeps and Springs?" on page 3). Bergey also noted that because of their distance from the river, the springs are generally protected from flood events, allowing the aquatic habitat to develop into a diverse community. During a recent visit, Bruce Hoagland and Amy Buthod, botanists with the Oklahoma Biological Survey, were impressed with the variety and density of the aquatic plant life flourishing in the flowing water of the springs and the Blue River. They collected several species of plants that had not been previously recorded for Johnston County.

In addition to having excellent examples of spring and river habitats, the Arbuckle-Simpson Ranch has a population of seaside alder (*Alnus maritima*), a rare shrub with a disjunct range (south-central Oklahoma, southwestern



Priscilla Crawford

In the late summer, the seaside alder (*Alnus maritima*) bears catkins, male flowers that produce pollen.

Delaware, adjacent eastern Maryland, and one area in Georgia). Also, a population of giant cane (*Arundinaria gigantea*) is thriving along the Blue River on this property. Giant cane forms "canebrakes" which were once widespread in Oklahoma and throughout the Gulf Coastal Plain. In the early 1800s, naturalist Thomas Nuttall described a canebrake one mile wide near the confluence of the Grand and Verdigris Rivers. Now giant cane is relatively rare and canebrake habitat is considered to be imperiled in North America.



Priscilla Crawford

Landowner, John Bruno, and aquatic biologist, Liz Bergey, talk about the organisms that make the Blue River their home.

We are glad to add the Arbuckle-Simpson Ranch to the Oklahoma State Register of Natural Heritage Areas!

Oklahoma Natural Areas Registry



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The 3rd poster in our biodiversity series will be available this winter.

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Newly Registered Site Bobcat Hill, Garvin Co.

Jim and Leschen Crawford and their family have added a part of their farm to the State Register of Natural Heritage Areas. Bobcat Hill Natural Area is 90 acres of their 2240-acre farm and ranch located in western Garvin County. The hill is just out the back door of their house and from the den windows you can see shooting stars (*Dodecatheon meadia*) blooming in the spring,

native grasses covered in frost in the fall, and occasionally a pair of strolling bobcats. You can also see a clump of oaks tucked in a small ravine. At first glance, these oaks seem to be typical post oaks (*Quercus stellata*) until you examine



Post oak leaves, on the left, have deep lobes and are slightly fuzzy. The shiny leaves of the short-lobed oak, on the right, have shallow lobes and somewhat wavy edges.

the leaves. The leaf edges are wavy and the lobes are shallower than post oak. In fact, these oaks are an uncommon variety called the shortlobed oak (*Quercus sinuata* var. *breviloba*) that are only found in four counties in Oklahoma and through central Texas, including the Edwards Plateau.

Phillip Crawford, Jim and Leschen's son, discovered this stand of short-lobed oak during a floristic inventory of the farm a few years ago. During his many years exploring the farm, Phillip knew certain spots were particularly interesting. He found seeps and springs, rock outcrops, ponds flooded by beaver dams, and morel mushroom patches. A few of these places yielded interesting botanical discoveries.



Only a few inches tall, the snowy whitetop sedge forms a thick mat on the damp soils around the seeps of Bobcat Hill.

Within the mixed grass prairie, outcroppings of the native sandstone hosted a few notable species, such as the Oklahoma evening primrose (*Oenothera macrocarpa* ssp. *oklahomensis*), an uncommon wild buckwheat (*Eriogonum alatum*), and a cliff-brake fern (*Pellea atropurpurea*). In areas where sloping rock layers carry groundwater to the soil surface, he found seeps occurring sporadically within the native pasture (see "What Causes Seeps and Springs?" on page 3). The plants growing around the seeps were conspicuously different from those in the surrounding grassland. A rare sedge, snowy whitetop (*Rhynchospora nivea*), was abundant at many of the hillside seeps. Less rare, but beautiful, plants found in and near the seeps were the blue lobelia (*Lobelia siphilitica*) and Barbara's buttons (*Marshallia caespitosa*).



The rock outcrops of Bobcat Hill are excellent habitat for the rare wild buckwheat, *Eriogonum alatum* (the tall, slender yellow-green plant rising from a basal rosette of leaves).

Jim Crawford's grandfather bought this farm and ranch in 1904 for "\$50 and a herd of pigs." For the past 102 years, five generations of Crawfords have relied on this land to produce grain, hay, and beef, but they also love this piece of Oklahoma for its natural beauty and diversity and intend to conserve it for generations to come. ■

Phillip Crawford

Priscilla Crawford

Priscilla Crawford

Do you want to continue to receive the Registry News? You received this newsletter because you are either a member of the Oklahoma Natural Areas Registry Program or you signed up to receive the newsletters of the Oklahoma Biological Survey. Landowners in the Registry Program will always continue to receive the newsletter without interruption. However, in an effort to reduce paper waste and unwanted mail, we are asking that non-member recipients of the Registry News verify their desire to continue to receive our newsletter. **If you want Registry News sent to your home, please take action.** Send your mailing label or email your name and address to us if you are interested in receiving the Registry News in the mail. PDF files of the newsletter will always be available on our website for anyone. Thanks for your interest in our program!



Habitat Close-up

What Causes Seeps and Springs?

Water lies beneath the Earth's surface almost everywhere. This water can occur near the surface, such as in a marsh, but it may lie hundreds of feet beneath the surface. It is difficult to visualize water underground. Some people mistakenly believe that water is stored in underground lakes or flows in underground rivers, but in fact, ground water collects in permeable rocks called aquifers. Aquifers can be a layer of gravel or sand, sandstone or cavernous limestone, or even less permeable rock, such as fractured granite. All the cracks, crevices, and pores of rock below the water table fill with water. Water flows through the aquifer to streams, springs, or wells from which water is being drawn. Water is added to the aquifer through precipitation. As rain or snow reaches the ground some is used by plants and held in soil at the surface, but excess water will filter down to the water table and replenish the aquifer. The natural refilling of aquifers can be a slow process. The speed of replenishment is determined by several factors: the depth of the aquifer and water table, the type of rock making up the aquifer, and the current precipitation in the area. Some aquifers in the arid West were filled in a time of much higher precipitation. The recharging of western aquifers will take many, many years under the current dry climate.



Elizabeth Bergey

In Oklahoma, watercress (*Nasturtium officinale*) usually indicates a location of spring. Watercress growing along a creek is usually a sign that water is welling up along the creek bed.

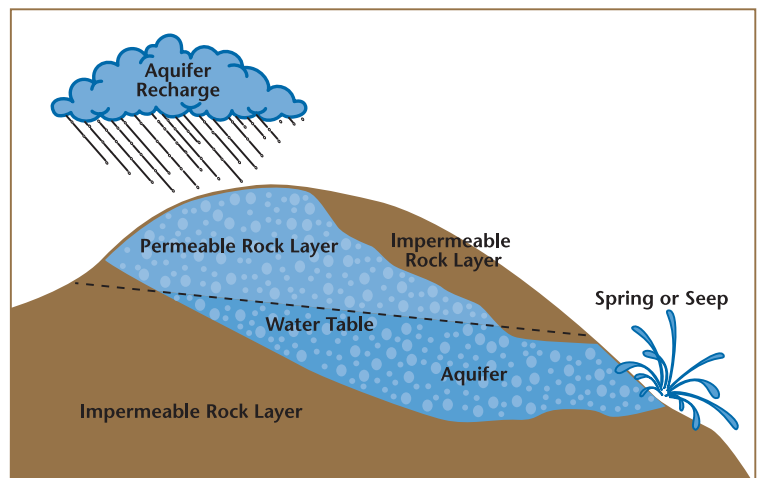
Aquifers vary in size and volume of water held. The size of an aquifer is determined by its horizontal and vertical extent. Aquifers can range from a few feet to hundreds of feet thick; they can also be just a few acres across or thousands of square miles wide. The volume of water held in an aquifer is also determined by the porosity of the rock. The porosity is the measurement of the empty space between the grains of rock or cracks or holes in the rock. The pores in the rock must be connected in some way to allow the water to flow through the rock. The better connected the pores, the more permeable the rock.

Water in an aquifer moves slowly toward lower lying places and is eventually discharged in the form of spring and seeps, or is drawn out through wells. Aquifers that are between layers of impermeable

rock may be under pressure. If water is released from an aquifer under pressure it can rise above the water table and create a fountain effect. We know these as artesian wells. However, pressure isn't necessary to release water from an aquifer. The water within an aquifer moves downhill due to gravity until it hits an impermeable layer or is released to the surface. The amount of water that is discharged by an aquifer can vary. Water may appear to flow from a hillside or simply seep from between rocks. ■

About Springs

Water flows through the permeable rock layer via gravity. Below the water table the permeable rock layer is saturated with water, creating an aquifer. A spring occurs when the aquifer meets the surface of the earth. Our depiction of a spring is very simple and many spring systems are much more complex. Sometimes it is uncertain where the recharge area is and how long it takes water to travel from the recharge area to the spring. The science of water's movements in the soil and rock beneath the Earth's surface is called hydrogeology.





Making Conservation Happen:

Financial and Technical Assistance to Conserve Your Land

We receive many inquiries each year from members of the Registry Program and from other landowners in Oklahoma concerning programs that might aid in land conservation. We have compiled information on several different programs that range from technical assistance to grants for conservation land management. We hope that you can benefit from the variety of programs offered to private landowners.

U.S. Department of Agriculture, Natural Resources Conservation Service

Contact: Kevin D. Norton, (405) 742-1236

Conservation Technical Assistance (CTA)

Provides assistance in the creation of conservation plans for resource management. Landowners often use these conservation plans to apply for implementation funding through other programs and organizations.

Conservation Reserve Program (CRP)

Offers financial incentives to protect highly erodible and environmentally sensitive cropland by planting trees, grasses, and other long-term cover. Participants receive annual rental payments and up to 50% of the costs of approved conservation practices. Requires a 10-15 year agreement.

Farm and Ranch Lands Protection Program (FRPP)

Conservation easements that will protect farmland from development. Landowners retain the right to use the land for agriculture.

Healthy Forests Reserve Program (HFRP)

To restore and enhance forest ecosystems, with emphasis on the recovery of threatened and endangered species, improving biodiversity, and enhancing carbon sequestration. Landowners can enroll in three different options that vary in agreement period and percent cost-share.

Wetlands Reserve Program (WRP)

Provides technical and financial assistance to landowners to address wetland concerns, including restoration and protection of wetlands, enhancing wildlife habitat, and related natural resource concerns.

Oklahoma Department of Agriculture, Food, and Forestry

Forest Resources Development Program (FRDP)

Contact: Forestry Services Division, (405) 522-6158
Landowners with a forest management plan can apply for this cost-sharing program to implement good land management practices and to promote the use of trees to help solve environmental problems.

Oklahoma Department of Wildlife Conservation

Private Lands Wildlife Habitat Improvement Program (WHIP)

Contact: Game Division, (405) 521-2739

Provides up to 50% of the cost of habitat improvement for deer, turkey, pheasant, dove, quail, and waterfowl. Requires a 10 year contract and grant will not exceed \$2,500.

Landowner Incentive Program (LIP)

Contact: Larry Wiemers, (580) 254-9173

Provides technical and financial assistance to conserve, enhance, and restore short and mixed grass prairie habitats. Improving habitat for the black-tailed prairie dog is the primary focus of this program.

U.S. Fish and Wildlife Service

Private Stewardship Grants Program (PSGP)

Contact: Mike McCollum, (817) 277-1100

Technical and financial assistance to private individuals or groups engaged in voluntary conservation of species listed or proposed as threatened or endangered under the Endangered Species Act.

Playa Lakes Joint Venture

ConocoPhillips Grants

Contact: Steve Webber, (405) 521-4613

Provides up to 50% of cost of habitat conservation of playa lakes, saline lakes, marshes, riparian areas, and associated uplands that support wintering, migrating, and breeding birds.

Trust for Public Land and Land Legacy

Farm and Ranch Preservation Initiative

Contact: Robert Gregory, (918) 587-2190

Easements are developed to protect agricultural lands from development. Easement rights are granted or sold to the conservation organization for the perpetual protection of agricultural land.

American Farmland Trust

Contact: (202) 331-7300

Encourages the preservation of agricultural land by providing information on conservation easements, fiscal assessments, agricultural planning, and encouraging economically and ecologically sustainable farming practices.

Further information on these programs, including links to websites, addresses, and program specifics, can be found at our website (www.oknaturalheritage.ou.edu/registry_about.htm) or by calling Priscilla at the Registry Program office, (405) 325-7658. ■

Our Aim: Oklahoma Natural Areas Registry encourages citizen-based conservation of Oklahoma's natural diversity through a voluntary land-preservation program that promotes awareness of rare species, natural communities, and important geologic features.

A Note from the Registry Representative

The Registry office has been busy these past several months. I have been traveling the state visiting our landowner members and observing the rare plants, animals, and communities that they protect on their properties. This spring I went to Cherokee County to check on populations of the Ozark spiderwort (*Tradescantia ozarkana*), a beautiful blue flower only found in the Ozark and Ouachita Mountains in Oklahoma, Missouri, and Arkansas. Later I visited hay meadow sites throughout central Oklahoma to observe the flowers of the Oklahoma beardtongue (*Penstemon oklahomensis*, the flower of the Registry logo). This plant is one of the few found only in Oklahoma and in no other state! Before the summer became broiling hot, I was able to travel to Johnston and Pontotoc counties in south-central Oklahoma to see the seaside alder (*Alnus maritima*) along the Blue River and a few of its tributaries. In the cooler mornings of July, I walked along the Canadian River to observe the interior least tern (*Sterna antillarum athalassos*), a federally endangered migratory bird that breeds on sandbars of several rivers in Oklahoma.



Priscilla looks for bald eagles at Cedar Lake in the Ouachita National Forest in southeastern Oklahoma.

I haven't been the only one busy this year. Dustin Woods, our undergraduate research assistant, has been researching landowner information and programs that encourage private land conservation. You can benefit from his research by reading "Financial and Technical Assistance to Conserve Your Land" (on page 4). Two conservation interns have also been working on projects for the Registry Program this fall. Jessica Hetherington has begun an inventory of the flowering plants of Oliver's Woods, a Registry property owned by the University of Oklahoma. Jessica is a botany major and may complete a project next semester on vegetation changes of Oliver's Woods. Erin Weeks, a botany minor, has been developing educational activities on local endangered species and updating our endangered species fact sheets. I appreciate the time and work these students have contributed to the Registry Program this year.

So far, I have been able to visit thirty registered Natural Heritage Areas. This winter, I look forward adding to that number by visiting bald eagle nesting sites. I also look forward to another year helping the landowners of our state to conserve Oklahoma's natural diversity.

A handwritten signature in black ink that reads "Priscilla".

Priscilla Crawford joined the Oklahoma Natural Areas Registry Program in January 2006 as the Registry Representative and Conservation Specialist.

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The Oklahoma Natural Areas Registry is a program of the Oklahoma Biological Survey, Oklahoma Natural Heritage Inventory, and the state of Oklahoma.



Registry Signs:

Free Registry boundary signs are available for all Registry participants. The signs measure 11" x 11" and are made of white plastic with blue lettering. If you would like to order signs for your natural area, please contact the Registry Program.

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Oklahoma Biological Survey
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"Crayfish of Oklahoma" the 3rd installment in our poster series on Oklahoma's Biodiversity

Beginning in January copies of this new poster can be picked up at the Oklahoma Biological Survey's office in Norman. Contact us if you would like a poster but are unable to pick one up at our Norman office. If you are interested in distributing posters to people in your organization, group, department, or school, please call at us (405) 325-7658 or email okregistry@ou.edu. We will be happy to arrange a pick-up or delivery of posters.

If you are interested in learning more about the Registry Program please visit our Web site at www.oknaturalheritage.ou.edu or call (405) 325-7658.

