

FALL REPORT 2011

WSU Arboretum & Wildlife Conservation Center

Fall semester, 2011, was a busy one in the WSU Arboretum & Wildlife Conservation Center (AWCC) due to the combined efforts of faculty, students, staff, technical consultants, and volunteers working to restore and develop the new arboretum landscape. Over 40 students in WSU's restoration ecology course, a new UCOR interdisciplinary capstone course featuring experiential learning and community service credit, worked on 8 different arboretum projects.



Plan Bee at WSU: Developing a Citizen Science Project on Palouse Prairie Pollinators

Students in restoration ecology conducted several weeks of **pollinator surveys** in the AWCC using containers of flowers placed in different locations and habitat types to **describe environmental factors** (e.g., flower type, grassland cover, distance to water, distance to bee hives, weather, etc.) related to **pollinator visitation**. Results of the pollinator surveys will be depicted graphically in **ecological modeling** software and will help guide development of a community **citizen science project** in 2012.



Camas Display Garden Planted

Over the years, a **camas display garden** created in what is now part of the new arboretum, began to decline badly. A **botanical garden** was renovated by student workers this past summer, and this fall, students **replanted** the camas garden area with healthy bulbs of several varieties of camas. Because of a long term drying trend on the site, students also contoured depressions in the soil to help retain the **moist soil** preferred by the **beautiful blue camas flowers** that will now bloom again in spring, 2012.



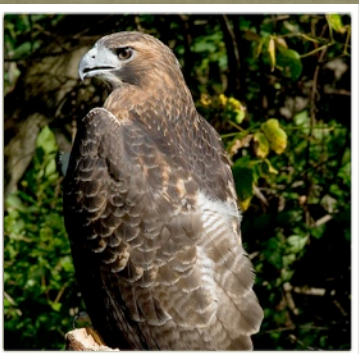
Cougar Green Fund Proposal

The single permanent pond in the AWCC is severely affected by a large resident population of **introduced goldfish** which eat vegetation, lower water quality, and reduce the usefulness of the pond for **amphibian breeding**. However, instead of trying to eliminate the goldfish, students decided to develop a plan to **introduce western painted turtles** into the pond. Students prepared and submitted a proposal to the WSU Cougar Green Fund to **restore** and improve the **pond environment** for wildlife and visitors.



Nature Trail Development

A **nature trail** around the arboretum pond and through the **naturalized woodland** by the pond was mapped and plans were developed for needed improvements during the coming year. Students determined locations for **information display boards** for the general public and developed draft copy so that signs could be put in place during 2012. Another project associated with the nature trail is the rescue of historical lilac plantings on the edge of the woodland which have been nearly covered up completely by invasive shrubs.



Artificial Raptor Nest

Although **red-tailed hawks** and **great horned owls** nest in the small woodlands on the arboretum landscape, students have developed plans for constructing an **artificial raptor nest** using an old weathered telephone pole standing near a walking trail. The artificial nesting platform would provide an interesting opportunity for an **educational display** about raptors on the WSU campus and might be accepted as a nest site by local hawks or owls.

Native Plant Propagation

A series of **native plant propagation** sites were created in the renovated **botanical garden** to allow a variety of native plants to be tended and grown for display or restoration on the arboretum landscape. In addition, a small **tree nursery** was maintained by the botanical garden and trembling aspen, **ponderosa pines**, and several species of shrubs were planted in containers. As the native plant collection grows, students in classes such as **Dr. Ben Zamora's Forest Plants & Ecosystems**, or his **Arid Land Plants** course, will be able to study more plants and plant communities right on campus. Photo right: Students plant **Bearberry** (or **Kinnikinnick**) in a propagation plot.



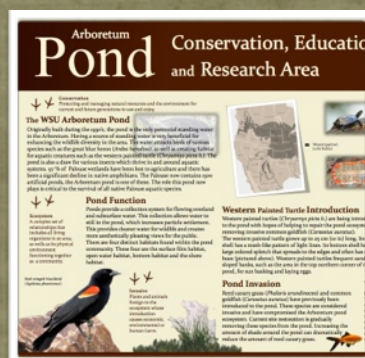
Breeding Ponds for Endangered Leopard Frogs

One of the wildlife projects students worked on during fall semester was the development of several **artificial ponds** to be used for breeding the **state-endangered** northern **leopard frog**. Northern leopard frogs have declined greatly in Washington State and WSU is attempting to **breed the frogs in captivity** to support future **reintroduction efforts**.



Interpretive Signs for Environmental Education

Student restoration teams produced a series of **interpretive signs** to be used for science and **environmental education** and to improve the arboretum experience for visitors using the walking trails and **hiking paths** in the AWCC. These draft information boards will be edited, printed, and a number of them will be installed in the arboretum by **volunteers** and other student groups in 2012.



Ground Water Studies & Vernal Ponds

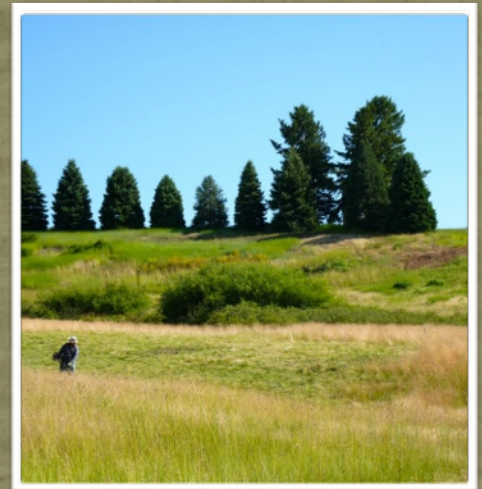
Wetland and riparian habitats along the edge of the arboretum have been severely impacted by historical road construction. Consequently, students tackled the issue of how to restore or otherwise improve riparian habitats, which include about five small **vernal ponds** - defined as wetlands which dry up during part of the year. Students developed a research plan and **installed monitoring gauges** to document water level patterns during the year. Despite limited size and number, these arboretum ponds produced large numbers of **long-toed salamanders**.



Beetle Juice

Actually, we might have entitled this news piece as "grasshopper juice". A number of entomology studies were conducted in the AWCC during fall, which is not surprising because of the extensive and different habitats found right on the WSU campus, even at this early stage in our land development. For example, **Dr. Mark McClure**, who teaches a course covering **ecological sampling**, has discovered that portions of the arboretum grasslands contain high densities of grasshoppers in fall and that students are able to study mark and recapture **population estimation techniques** right on campus.





A Plan Evolves: Ecological Design & Sustainability in the WSU Arboretum & Wildlife Conservation Center

Students in the restoration ecology class devoted fall semester to begin work to develop and assemble segments of what will become an ecological and **sustainability design plan** for the AWCC. By analyzing the unique **Palouse Prairie** landscape, habitat features, the existing and potential biological community, and both positive and negative attributes of the land, elements of **future ecological design** are emerging for the arboretum. Additional faculty, students, and community members will pick up this work during the coming year and continue building a design plan for the AWCC.



Erim Gomez Wins 2011 Bullitt Foundation Environmental Fellowship Award

Erim Gomez, doctoral student in the new **WSU School of the Environment**, is the first student from WSU to ever win the Environmental Fellowship Award from the **Bullitt Foundation**. **Denis Hayes**, President and CEO and the **founder of Earth Day** (left), and **Michael Parham**, Board of Trustees (right), presented Erim Gomez with the \$100k fellowship award to continue his growth and development as a future **environmental leader**. Erim will pursue his doctoral work through the **Endangered Species Lab** in the AWCC, where he plans on studying **endangered leopard frogs** in Washington and other species urgently needing conservation. Erim is already well known as an **excellent science teacher** and **mentor** at WSU and his future goal is to become a university faculty member where he can help others learn and achieve their own life goals.



Palouse Prairie Restoration Roundtable

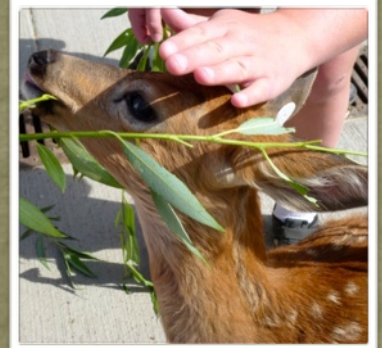
WSU students working on landscape development activities in the arboretum attended a **Palouse Prairie restoration** workshop presented over two evenings and sponsored by the **Latah Soil and Water Conservation District**, the **Intermountain West Joint Venture**, **Palouse Prairie Foundation**, and the **Idaho Native Plant Society**. Students learned about the prospects for restoring Palouse Prairie, bee pollinators, funding sources for restoration projects, and how to deal with invasive plants during the restoration process. Our very own, **Dr. Ann Kennedy**, a **soil microbiologist** with the **USDA Agricultural Research Service** at Washington State University, impressed the students with the potential for using naturally-occurring, cultured **soil bacteria** to **inhibit root growth** of invasive weeds, such as cheat grass, in Palouse Prairie. Such **biological control** has the potential to be a game changer in restoring prairies facing an onslaught of introduced weeds.



Things With Wings

Doctoral student, **Tyler Hicks**, spent fall semester on the Pullman campus while taking conservation biology, working on his dissertation, and trying to chase down a few **carabid beetles** in the Arboretum. Tyler is visiting from **WSU Vancouver**, where he works with **Dr. Cheryl Schultz** on the **endangered Karner's Blue Butterfly**, found only in the **Willamette Valley** of Oregon.

Tyler has a deep interest in the ecology and conservation of all forms of biological diversity and has worked on wildlife as different as **Pacific banana slugs** (even if they don't have wings), **Greater Sage Grouse**, and of course, butterflies. Tyler's work may be found on his **Things With Wings** web site, and we are happy to announce that he will be joining the AWCC as a **contributing author** to our **science and sustainability blog** series, **Nature @ WSU**.



For Children

Amy Ulappa, doctoral student (standing center above) working in the **Wild Ungulate Facility**, directed by **Dr. Lisa Shipley**, talks to a group of middle school students visiting the AWCC with the **Moscow Parks and Recreation's Summer Break Kids Kamp**. Youngsters visited the **WSU Bear Center** and talked about bears, collected willow branches to feed the hungry **deer fawns**, and **captured tadpoles** and **aquatic insects**, and looked at **tiger salamanders** while visiting the **Endangered Species Lab**. As AWCC facilities are developed, hands on, outdoor educational programs for both children and adults will be a major feature of the environmental education activities in the AWCC.



Nature @ WSU: Are Polar Bears Really Endangered?

This fall, we continued development of our **science and sustainability blog, Nature @ WSU**. While we covered everything from butterflies to beavers to **urban agriculture** and high-tech **vertical farming**, we were not at all surprised to see that external viewers most frequently came to our science blog through searches involving our story on whether **polar bears** are endangered because of **global climate change** and the loss of summer ice packs in the Arctic Circle.

Our **WSU Bear Center**, directed by **Dr. Charles T. Robbins, WSU School of the Environment**, and **Dr. Lynn Rogers, DVM, WSU College of Veterinary Medicine**, receives national and international attention on a regular basis because it is the only facility in the world to house adult grizzlies for behavioral, nutritional, and physiological studies.

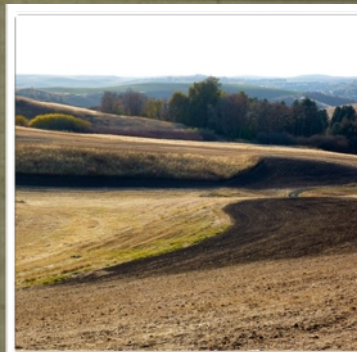
Because of the intense interest in **grizzly bears** and other bears of the world, you may expect to see us continue our science conversations about **bear ecology and behavior** during 2012. And visitors to the AWCC will be awed by watching these powerful and beautiful creatures.



WSU Science Online: Are Florida Panthers Natural?

This fall, over 60 students, including **teachers, graduate students,** and other **working professionals** scattered across Washington, took my **online course** in **Conservation Biology**, which I define as the science of conserving the Earth's biological diversity. One of the weekly online study and discussion sessions included analysis of the consequences of the **genetic rescue** of Florida panthers whereby several cougars from Texas were transplanted into the Florida panther population to correct problems with **inbreeding depression** (e.g., kinked tails, low sperm viability, poor reproduction and survival).

WSU students recognized the benefits of genetic rescue for the Florida panther population, which began to grow in size and produce healthy individuals, but were somewhat divided over the question of whether the resulting panther population was considered "natural" or not, given this intervention by humans. In 2012, we will bring some of our **online science discussions** into an **open public forum** allowing the entire WSU community to participate. And we may ask our own **resident cougar expert** from our Wildlife Conservation Center, **Dr. Rob Wielgus**, to see what he thinks. - R. Saylor



Old Field Restoration in the Arboretum

The primary land management activities in the 170 acre Arboretum & Wildlife Conservation Center during fall, 2012, were mowing, control of invasive weeds, and cultivation and planting of several old farm fields to restore grassland cover. The upper central basin of the AWCC (top) will be restored with a **mixed bunchgrass community** and it already contains several plots of **native Palouse Prairie** plants that will be able to spread into the surrounding grasslands once invasive weeds are eliminated. Because our arboretum farm equipment was too small for the job, we received substantial assistance from several **WSU farming operations** for extensive mowing, field cultivation, and drilling grass seed. Without this help, and the **donation of grass seed** from Mark Mustoe of Clearwater Seed and Orlin Rinegold of Landmark Seed, it is doubtful that we could have planted all the fields this fall and started on the path towards **restoration of Palouse Prairie plant communities**.

Acknowledgements

We thank the many students in the restoration ecology class who participated in arboretum development this fall, and we especially thank Mark Mustoe, Clearwater Seed, and Orlin Rinegold, Landmark Seed, for their technical advice, field consultations, and donation of grass seed, as well as David McCarroll (Capital Planning & Dev.) who completed an extended weed management plan for the arboretum. We are indebted to Frank Ankerson and Ryan Davis (Crop & Soil Sci.), Jarrod Pfaff (Pea & Lentil Breeding), Ron Sloat (Plant Pathology), Todd Lupkes (Palouse Ridge Golf Club), Wayne Olson (Plant Introduction), Jerry Weber (Animal Sciences), and other farm, land, and program managers at WSU who worked to help us develop the arboretum landscape this fall.

In 2012:

Nature @ WSU:

Are Worms Natural?
Do Wolves Attack People?
Slug Racing (all day event)
Tigers on the Palouse

Watch Us Grow:

Arboretum Tours
Garden Development
Tree Planting Projects
Wildlife Center Programs

Participate:

Arbor Day - Earth Day
Citizen Science Project
Tree Planting
Volunteer Work

For More Information:

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WSU Arboretum & Wildlife Conservation Center: www.arboretum.wsu.edu

Nature @ WSU: <http://wsu-nature.org/>

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The WSU Arboretum & Wildlife Conservation Center
is a university program and science facility administered by the
[College of Agricultural, Human, and Natural Resource Sciences](#).

