



WATERLINE

DECEMBER 2010

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Meet the coyotes

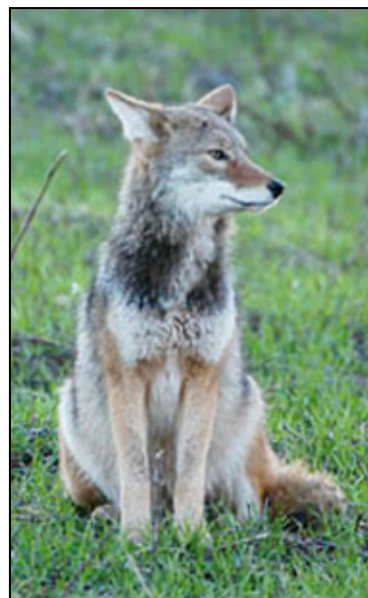
Your lakeside neighbors, part 2

Coyotes are among the most elusive wildlife that humans harbor in our suburban neighborhoods, including near lakes. In pioneer days, coyotes (*Canis latrans*) were mostly found in sagebrush lands, bushy mountain areas and open prairies, while grey wolves occupied the forests. Thanks to human impacts on their environment (including the reduction of gray wolf populations), the coyotes' range has now expanded through North and Central America.

The coyote resembles a small German shepherd, but coat color can vary a great deal: from black to brown, gray, yellow, rust and tan. Two characteristics that distinguish coyotes from domestic dogs are coyotes' shorter, bushier tails that are carried low, almost dragging on the ground, and coyote muzzles that are longer and narrower than most dog muzzles.

Life cycle, food, and habitat

Coyotes typically live no longer than four years in the wild, although coyotes in captivity have lived as long as 18 years. They breed in late winter and have an average of four pups per litter in April and May. Cared for primarily by the female, coyote pups emerge from the den in two to three weeks. When the young emerge, their food requirements increase dramatically, and it is at this time that conflicts between humans and coyotes are most common. Juvenile coyotes usually disperse at six to eight months old, alone or in small groups. Depending on food availability, they may stay close or travel as far as 50 miles away to seek new territory.



As a result of human impact, the coyote's range now covers North and Central America.

In the Pacific Northwest, the intelligent and adaptable coyote has managed to occupy almost every conceivable habitat, from open range to densely forested areas to downtown urban waterfront. Female coyotes dig their dens under uprooted trees, logs or thickets; they may also use caves, hollow logs or storm drains. Dens typically have an opening one to two feet across and are dug five to fifteen feet deep. Coyotes often prepare several dens and move from one to the other to protect their young, keep dens cleaner and reduce fleas and parasites. Coyotes tend to use the same dens each year.

Our coyote neighbors are opportunistic hunters and scavengers. They eat small animals, including mice, rats, voles, rabbits, mountain beavers, squirrels, and, yes, they will hunt domestic animals. Pairs or families of coyotes may hunt deer and antelope in the winter when food is scarce and fawns may be taken in the spring. Coyotes are survivors – not only skilled hunters, but excellent grazers and scavengers – and will

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Annual conference in Tacoma spotlights low impact development and stormwater management

On September 9th and 10th, WALPA members from across the state converged on the University of Washington's Tacoma campus to learn about lake and watershed studies around Washington. Curtis Hinman, an Associate Professor with Washington State University Extension, and Affiliate Faculty with WSU Department of Natural Resource Sciences, kicked off this 23rd conference with a fantastic plenary talk about low-impact techniques used around the state. This set the tone for the following session on Low Impact Development, which showcased an excellent mix of techniques that address the needs of development both west and east of the Cascades.

Other highlights from the first day included an aquatic plant session that was highly popular thanks to the great talks and the continuing education credits offered for pesticide license

holders who attended. Another first-day session covered short and long-term monitoring projects, including one in Spokane County that uses snowmobiles to collect samples through the winter. Speaking of long-term, the first day also featured reports on the Centennial Grant Projects.

At the WALPA business meeting, the board discussed everything from retiring board members to legislation. No votes were needed, so members aired a video about the City of Spokane to entice WALPA and NALMS colleagues to attend next fall's NALMS conference slated for Spokane.

The first day wrapped up with a terrific no-host social at the Harmon Brewery right next to campus. WALPA members filled the back tables to discuss the day's presentations and catch up with colleagues from across the state. Many of the



WALPA members enjoy the social at the end of the conference's first day.

[Continued next page](#)

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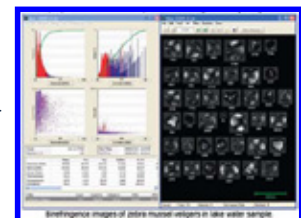
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Annual conference

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WALPA student attendees and speakers gathered at one table and it was networking in action! The comfortable atmosphere made the evening seem more like a gathering of old friends than a formal "icebreaker" event.

The second morning was filled with concurrent presentations: more on aquatic weeds and, in keeping with the conference theme, a stormwater session. The last talks were dedicated to cyanobacteria -- always of interest to conference attendees. This session featured a talk by the Seattle citizens' group Friends of Green Lake, who reported on their recent study of cyanobacteria. Gene Williams and Marisa Burghdoff shared new data and procedures, especially their use of a phycocyanin meter to try to predict blue-green algae blooms.

The conference concluded with a field trip organized by Chris Burke of the City of Tacoma and Jim Gawel of the University of Washington, Tacoma. The tour took WALPA members around the city to look at stormwater management techniques and LID projects -- both in progress and complete. Jim also took the group to Lake Wapato in the heart of the city and discussed the challenges of managing an urban lake.

The caliber of the presentations, the delightful social and



Chris Burke, City of Tacoma, leads conference attendees on a tour of stormwater management and LID projects.

the informative tour made this WALPA conference one of our best. WALPA sends thanks to our sponsors who support our mission and help us grow, and especially to all the speakers who gave their time to participate in the conference.

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Meet the coyotes

Continued from front page

eat grass, fruits and berries in the summer and fall as well as any animal carcasses they find. Most of their food gathering takes place at night, but hungry coyotes will hunt during daylight hours.

Coyote populations are typically controlled by social stress within the coyote community, diseases, parasites, starvation, and predators. Common predators include humans, cougars, wolves, black bears and other coyotes. Pups are often killed by eagles, dogs and adult coyotes. Where coyotes are actively hunted, females produce more pups than in areas where they are protected.

Diseases and health risks

Diseases and parasites carried by coyotes are rarely a health risk to humans but can be a risk to domestic dogs.

Coyotes may carry canine distemper, a viral disease that affects domestic dogs. It is spread most often when animals come in contact with the bodily secretions of infected animals. Make sure to have your dog vaccinated against canine distemper.

Canine parvovirus (“parvo”) is another disease that can spread from coyote populations to domestic dogs, usually though direct or indirect contact with infected droppings. There is a canine parvovirus vaccination for domestic dogs, but puppies and older dogs may be at risk for “parvo” even if vaccinated.

Mange, caused by a parasitic mite that affects coyotes in our region, can cause extreme irritation when the mite burrows into the outer layer of the animal’s skin. The mite that causes mange is fairly species-specific; humans are highly unlikely to contract mange from a wild animal.

Rabies may be a concern, as coyotes have been shown to carry rabies elsewhere in North America. If a person or domestic animal is bitten or scratched by a coyote, immediately scrub the wound with soap and water and flush it liberally with water. Contact your doctor, local health department or veterinarian immediately.

Coyote encounters

There have been very few documented coyote attacks on humans in the Pacific Northwest. There were none until April 2006, when the Washington State Department of Fish and Wildlife (WDFW) euthanized two coyotes in Bellevue after two young children were bitten while their parents were nearby. Coyotes also scratched and snapped at two women and charged a man in the same area. This very rare

aggressive behavior was probably due to humans feeding the coyotes, causing them to lose their natural fear.

If you see a coyote acting aggressively, contact the nearest WDFW office or the Washington State Patrol. Avoid such conflicts by following a few simple rules:

- Don’t leave small children unattended in areas where coyotes are frequently seen or heard.
- Modify the landscape around children’s play areas. Keep shrubs and trees pruned several feet above ground level so coyotes can’t hide among the lower branches. Having a hockey stick or broom nearby in times of increased sightings will help prepare children for an encounter and remind them of effective encounter behavior.
- Teach your children not to run; be as big, mean and loud as they are able when dealing with a possible coyote encounter. By shouting an agreed-on phrase like “go away coyote” when they see one, rather than just a general scream, children will quickly let nearby adults know of the coyote’s presence. Demonstrate and practice encounter behavior with children.
- Never feed coyotes – ever. Coyotes fed by people can lose their fear of humans and develop a territorial attitude that can lead to aggressive behavior.
- Don’t let coyotes get to garbage. Keep garbage can lids on tight by securing them with chain, bungee cords, and/or weights.
- Feed pets indoors and keep them in at night. If you must feed your pets outside, do so before midday, and pick up all food, water bowls, leftovers and spilled food well before dark each day. Secure domestic animals like chickens or rabbits in a sturdy cage or building at night and keep their food tightly secured.
- Finally, have fun watching them from a distance. Coyotes

are extremely wary and have remarkable senses of smell, sight, and hearing. You are most likely to see them during the hours just after sunset and before sunrise. To view a coyote, locate a well-used trail and wait patiently in an area above the trail. Coyotes will often come down a trail the same time every morning or evening to gather food. Their trails are often found along draws, fence lines, game and livestock trails, and along roads. You can often spot their tracks in mud, sand or snow. Coyotes are fascinating

neighbors that balance our ecosystems by controlling rodents. Enjoy them and keep them wild – that’s best for you, your children and the coyotes!



Coyotes are fascinating neighbors that balance our ecosystems by controlling rodents. Enjoy them and keep them wild.

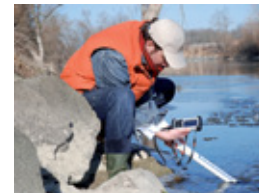
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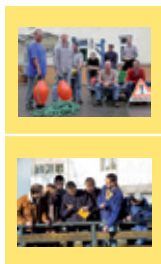
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WALPA awards scholarships to stellar students

WALPA was privileged again this year to award scholarships to two exceptional students whose studies relate directly to the organization's mission. Scholarship applicants – from students at institutions of higher education in Washington and Idaho – included undergraduates to Ph.D. candidates. Their research projects ranged from examining nutrients in lakes and wastewater processes to studying the effects of introduced species on lake communities and food webs.

As has become typical for these awards, the pool of applicants was extremely well qualified, creating some tough decisions for the scholarship committee. We sincerely thank all the applicants and encourage them to present their research findings at a future WALPA conference where we convene a special student session. The WALPA Board and Scholarship Committee extend hearty congratulations to this year's winners, Bo Li and Carmen Welch. Read on to learn more about them and their work.



Nancy Weller Memorial Scholarship recipient Bo Li

to be effective at removing P from wastewater and reducing the proportion available to plants. To further enhance her ability to solve environmental problems from a business and policy perspective, Bo Li is also working to complete the Environmental Management Certificate. After graduating in December, she plans to continue her studies as a Ph.D. candidate to deepen her understanding of the bio-availability of phosphorus and wastewater treatment processes.



WALPA Scholarship recipient Carmen Welch

WALPA Scholarship

Carmen Welch is a graduate student at Western Washington University's Huxley College of the Environment. She is pursuing an M.S. degree to add to the B.S. she earned from Huxley in 2004, which included a focus on freshwater ecology. Since 2001, Carmen has been an aquatic ecologist with the North Cascades National Park. For her master's degree, she's working under the supervision of Dr. Leo Bodensteiner to

examine the redbreasted sunfish population in Ross Lake, which lies near the Park's northern border. This minnow's population has grown markedly since its introduction to the lake in 2004, leading to concerns that the fish could disrupt lake food webs that provide quality habitat for native fish, including the threatened bull trout and a long-standing recreational native rainbow trout fishery. Carmen's study of the population's age, growth and diet will provide crucial information to resource managers making decisions about future lake management strategies.

Nancy Weller Memorial Scholarship

Bo Li is currently pursuing a M.S. in the University of Washington's Civil Environmental Engineering Department. Studying the impact of wastewater treatment on the bio-availability of phosphorus, Bo Li has been examining new technologies and processes installed at the City of Spokane Wastewater treatment plant. To date, the technology appears



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Two students share observations about undergrad research

Jim Gawel, associate professor of environmental chemistry at the University of Washington – Tacoma (UWT), is a new WALPA Board member. He asked two undergraduates from UWT's Environmental Program to relate their experiences studying lakes from the perspective of those new to water resource sciences.

Wapato Lake and Spirit Lake

by Heather Jennings

Wapato Lake is a small, shallow urban lake in Tacoma, Washington. Near the I-5 corridor, Wapato is primarily fed by nutrient-laden local runoff resulting in hyper-eutrophication. As a former student, I am fortunate to take part in a one-year monitoring program of this lake along with three other UWT students. The purpose of our study is to collect data on nutrient sources and sinks to better understand how to manage the lake's water quality.

UWT has teamed up with the City of Tacoma, Tacoma MetroParks, and Friends of Wapato volunteers to monitor the lake. Working together, we are able to involve the local community in protecting the lake. While sampling, we see many people walking around the lake with their pets and they often stop to ask us about what we're doing. When I explain that we're monitoring lake health, community members thank us and show a real interest in the cleanup effort. It is a great way for us to tell them about the simple

things they can do like picking up their pet waste and not feeding the geese. As a student I have an opportunity to be a teacher to the community in this way.

While attending UWT, I also completed a required capstone project during the summer of 2009 at Spirit Lake, in the blast zone of Mount St. Helens. Very different from Wapato Lake, Spirit Lake is a large, deep mesotrophic lake with limited public access. Rarely does a volcano of this size erupt in our lifetime, giving us a unique opportunity to conduct research on a newly reformed lake. Studying Spirit Lake made me apply my classroom knowledge in the

field. Working one-on-one with my professor, I was constantly challenged to advance my research skills in the field of limnology.

The experience I had doing limnology research as an undergraduate has been the most important component of my education as a future scientist. I was able to gain valuable skills in a dynamic learning environment that will set me apart from other recent graduates when I look for employment or apply to graduate schools.

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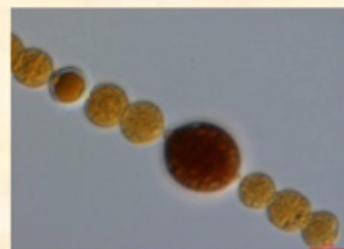
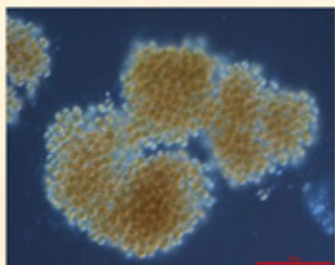
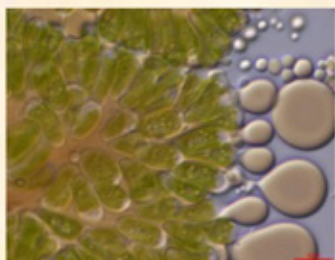
Heather Jennings and Jim Gawel, PhD, at Spirit Lake, Mt. St. Helens, 2009.

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Students share observations

Continued from page 7

Wapato Lake

by Anna Sonoqui

As an undergraduate at the University of Washington-Tacoma, I was given a great opportunity to be part of a research project that provided me with hands-on learning. I have learned so much from this project, gaining confidence in field work and data analysis, and believe undergraduate research is very important.

We are studying the water quality and nutrient budget of Wapato Lake, an urban lake within Tacoma's city limits. Stormwater drains into the north basin of the lake from I-5, the Tacoma Mall and densely-populated residential areas.

The lake was once a recreational swimming area for families and was used for swim competitions. While working at the lake, I have talked with many members of the community, hearing about their past experiences and their feelings about what is going on with the lake now. It is nice to hear what the



Anna Sonoqui, right, during sampling at Wapato Lake in July 2010. Kennedy High student Kendra Cass, left.

lake meant to people in the past. The community wants the lake to be what it was: they want to be able to swim, fish and enjoy this lake in their community.

There are usually high numbers of waterfowl at the lake, which contribute to its water quality problems. While working at the lake we have witnessed many people feeding waterfowl, sometimes right next to posted signs that say that such feeding is illegal. It can be frustrating watching people bring loaves of bread and dump them out for the geese.

A sign saying not to feed the birds will not cut it! I have to admit that

before I started my research, I would take my daughter to feed the birds -- it was the greatest thing about the park and she really enjoyed it. For people to stop feeding waterfowl, we need to help them understand the part it plays in the lake's water quality problems. The lake is important to our community and it will take all of us doing our part to create a healthy lake we can use.

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