

AQUATIC AMBASSADORS: RIVER OTTERS ARE POSTER PUPS FOR CONSERVATION

By Julie Dunlap

Courtesy of *Save the Bay* Spring 2008; for more information go to www.cbf.org

With the help of remote video cameras along two Pennsylvania rivers, researcher Sadie Stevens has spent hours filming the droll capers of wild river otters. Her sleek subjects inhabit streams throughout Chesapeake country, but are so elusive that few have the opportunity to view them as she does.

Stevens' window into otters' secret lives reveals their well-known penchant for wrestling, rolling, sniffing, and sliding in mud and snow. She's even grown fond of their "latrine dance," a foot-pumping ritual performed while depositing scat. "Otters are great to watch," she says of the footage.

Once, the Bay region teemed with otters. Two centuries ago, naturalist John James Audubon could count 46 of the "singular quadrupeds" on a single river in two hours. But unregulated trapping for their glossy brown fur swiftly exhausted otter populations across the continent.

Chesapeake marshes remained a refuge, but the weasel relatives, which average about two pups per litter, could not sustain the heavy harvest. Trapping pressures were compounded by the growing loss of wetland and riparian habitats, as well as water pollution from mining and industrial development.

By the 1980s, only remnant populations survived. In Pennsylvania, a small community of 350 persisted in the Pocono Mountains, isolated from their Bay-area brethren by cities and dams along the Susquehanna River. But graduate student Tom Serfass, encouraged by water quality improvements in the area, thought that reintroduction was possible, and pioneered the first restoration efforts. Now a professor at Frostburg State University, Dr. Serfass recalls feeling nervous when he freed his first four otters from their cages into Kettle Creek, a tributary of the west branch of the

Susquehanna, in 1982, "We didn't know if they were going to survive."

Radio telemetry data from the released (and thriving) otters restored his confidence. The program grew quickly, ultimately releasing over 150 animals, including 40 captured from Maryland's Eastern Shore.

Some fishermen originally opposed reintroduction, believing that otters would deplete trout populations. But studies revealed that Pennsylvania's river otters primarily consume crayfish, minnows, and other non-game species.

The scientific evidence convinced fishermen to join river activists, busloads of school children, and television crews

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Photo © Hal S. Korber

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PRESIDENT'S MESSAGE

Welcome to the Fall-Winter 2008 edition of *The River Otter Journal*. . . . and once again, our collective big 'Thank you' to Diane Tomecek for putting together a fine issue. In last Spring's message I wondered at what seemed like the sudden onset of the new year; today I wonder at how quickly the year seems to have passed, even considering all the events that transpired during its course. Between the economic meltdown and an election season that seemed like years instead of months, our minds have been overwhelmed with information overload. The former still simmers, while the latter is now behind us. We are left with a new and encouraging hope that the natural world, which was the hapless victim of the quest for short-term industrial economic gratification for the last eight years, will emerge to be the greatest beneficiary from the new administration. There is no reason that economic prosperity cannot result from prudent investment in environmentally sustainable industry.

In October, Judy and I were guests of The Nature Conservancy at the Conservation Learning Exchange in Vancouver, British Columbia, at which I was honored to be presented with the Oak Leaf Award for my volunteer participation on the development team of the Conservation Project Database. As you might imagine, Climate Change was the hottest conference topic to be discussed. A very encapsulated summary is that Climate Change presents the biggest challenge to face the planet in this century. Climate scientists are convinced we need to take immediate and severe actions to both slow the advance of Climate Change

and adapt to its consequences. As otter lovers, we need to be very cognizant that, although otters are adaptable species, the quality of their freshwater and marine habitats and consequential affect on the quality and quantity of their food supply, hang in the balance.

At another conference I attended in September, I encountered Yongut Trisurat, a conservation planner from Thailand. It took very little conversation between us to learn that he shares an office with Budsabong Kanchnasaka, who Judy met at the IUCN Otter Specialist Group conference in Czech Republic in 1998, and who is currently studying the recently-rediscovered Hairy-nosed Otter in southeast Asia. The world of otters is a small one, indeed, in many respects.

Last year at this time I talked about the effort to protect the headwaters of Amazon Creek in Eugene, Oregon from development to ensure a quality watershed for the otters that live in the West Eugene Wetlands below. I'm pleased to report that after a prolonged period of hearings and posturing, the city negotiated the purchase of a substantial portion of the headwaters this past summer. Long live the otters—and the ecosystem on which they depend.

It is time now for you to sit back and enjoy this issue of *The Journal* featuring The Toronto Zoo, the New Mexico reintroduction program, a report from a Colorado sixth grader on river otters, an article dedicated to sea otter tracking in California and much more!

The Board of The River Otter Alliance wishes all of you a happy holiday season and a great new year in 2009.

David

The River Otter Journal is a semi-annual publication of The River Otter Alliance.
Look for the next edition of ***The River Otter Journal*** in Spring-Summer 2009!

River Otter Alliance Mission

The River Otter Alliance promotes the survival of the North American River Otter (*Lontra canadensis*) through education, research and habitat protection. We support current research and reintroduction programs, monitor abundance and distribution in the United States and educate the general public through our newsletter, *The River Otter Journal*, on the need to restore and sustain river otter populations.

Our goal is to be a center of communications among wildlife biologists, environmental organizations, fishermen and all interested parties on a national and international basis, in order to ensure the healthy future of the North American River Otter. The River Otter Alliance is a tax-exempt, non-profit organization. All efforts to our organization are on a voluntary basis by those who share a common concern for the river otter and its habitat. We welcome any interested persons to volunteer their time at any level of the organization.

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The River Otter Journal has been printed on recycled paper.

AQUATIC AMBASSADORS (CONT'D)

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at future releases. Their diverse support didn't surprise Serfass, who calls otters "ambassadors for aquatic conservation."

Actual counts of the notoriously shy creatures are hard to come by, but every Pennsylvania watershed now hosts river otters, and populations are believed stable or growing in other Bay states.

Serfass urges continued vigilance throughout the Bay watershed. "It's great to point to successes," he says, such as well-regulated trapping, "but we still have abandoned mine drainage... We're not making any more of these [otter] habitats."

Otters play a vital role in their own protection. Because of their sensitivity to human activity, says Frank Felbaum,

former executive director of Pennsylvania's Wild Resource Conservation Fund, "they're an indicator species to the nth degree. They'll be out of an area before people know what's going on."

The successful reintroduction has cast the curious, playful creatures in a new role as conservation icons. Otter releases came to symbolize river cleanup, says Serfass, because "Pennsylvania realized otters' appeal promotes conservation—not just of otters, but conservation of other species and associated habitats." He advocates more public education about otters in aquatic environments, especially for school children. The reason is simple, he states. "The river otter is a very attractive face that can be put forth as a reason to conserve the bigger picture."

Dylon Patschke, a 6th grader from Bennett, Colorado, contacted ROA Board member, Carol Peterson in 2008 asking her assistance and advice on his science project questioning whether North American River Otters are intelligent. He went on to win best of show for his report. Congratulations, Dylon! Special thanks to Carol for spending the time to advise Dylon as he may become a future otter researcher or scientist. We hope you enjoy his report.

Hypothesis: I believe North American River Otters are intelligent animals. Based on analysis, interviews, observations and published research of their behaviors, habitat and environment, I will substantiate my hypothesis. I will base the presence of intelligence on situations that are observed or have been published and on how otters react or respond to events.

Purpose: My purpose in assessing river otter intelligence is to determine what we can learn from them regarding the environment. Once we understand them, we might be able to restore and maintain a balanced environment not only for them but for other wildlife. Further, we might be able to bring them back from extirpation by increasing their population and territory by ensuring an environment suitable for habitation.

Procedure:

- Searched online for useful information, river otter organizations and organizations exhibiting river otters
- Searched library for useful books
- Contacted river otter organizations for information, interviews, resources and observations
- Conducted interviews
- Observed and recorded behavior of captive river otters
- Analyzed behaviors in relation to intelligence

Report: What was that? It was there one minute, then gone the next. Well, if you were by a stream in Colorado, it could have been the North American River Otter, also known as the Northern River Otter [herein referred to as otter]. This otter is North America's native otter from the animal order of carnivora. It belongs to the Mustelidae family and is characterized by long, streamlined bodies; fine, dense hair and scent glands at the base of its tail. The genus species is *Lontra canadensis*. In Colorado, otters are listed as threatened so there is a state law protecting the species. Otters have very few predators, limited generally, to gray wolf, red fox, mountain lion, bobcat, coyote and/or bald eagle. [Competitors for food sources] include raccoon, skunk, mink and fish, such as trout.

Otters are usually a light brown-black color, which provides good camouflage, with a light underside. Its head is slightly smaller than its neck. It has short ears, which it uses for swimming, and whiskers, used for sensing its environment and prey. When it is dinnertime, the otter will use its mouth of very sharp teeth to catch and eat its prey. Living on both land and water, the otter's senses are very complex, allowing it to change from one place to another quickly and effectively.

Interesting? Well, so is an otter's elongated, streamlined body, which can be 34-60 inches long and can weigh 39-60 pounds. Amazingly, its bones are very flexible, allowing the otter to bend [in] any direction. This comes in handy for maneuverability and grooming. An otter's coat is comprised of two layers that consist of fine, dense and velvety hair. The outside layer, known as the guard hair, is longer, and stouter than the bottom layer. Known as the underhairs, the bottom layer of hair is short, dense and fine. Both layers of hair work together to trap air, providing good insulation to maintain body heat. The otter has four short legs with webbed claws of five toes. These claws are sharp, but non-retractable and are very good for catching prey. Its tail, long and tapered at the

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Otter Updates

By Diane Tomecek

 Congratulations to our Secretary, Judy Berg, on the publication of her book, *Weathered Wood and other Short Stories*. The book was published in August 2008 by Ulyssian Publications (ISBN 978-1930580-90-9). Judy published *The Otter Spirit* in 2005. Additional congratulations are in order for David Berg, our President, who was awarded the prestigious Oak Leaf Award by The Nature Conservancy for his tireless efforts devoted to the development of the Conservation Project database.

 Online shoppers, web surfers and ROA members can unite in an easy, innovative way to raise additional funds for The River Otter Alliance. The River Otter Alliance has partnered with the Yahoo-powered search engine called GoodSearch.com and the online shopping venue GoodShop.com. Both sites are completely free (and anonymous) to you, the user and shopper. All you need do is select The River Otter Alliance (GoodSearch/GoodShop ID #888204) as your charity of choice within each of the sites. For GoodShop.com, you'll need to access the retailer sites via the GoodShop site itself. But after that, you are all set—click and shop away!

The biggest bang for the buck in this effort arises from using the online shopping site, GoodShop.com; and with the approaching holiday season, many of us will increase our online shopping. There are over 700 top retailers including mainstream stores like Target, Barnes and Noble, Amazon, REI, Proflowers and many more! Each retailer lists the percentage (as high as 37%) of sale the ROA will receive as a donation, so you will know immediately the amount you've helped raise.



Photo courtesy of Annette Olsson, Conservation International (CI)

Dara, a Hairy-nosed Otter makes big news

(compiled from reports by Jenny Haworth from The Scotsman, MSNBC, The BBC and The Associated Press)

One of the world's rarest otters is being helped by donations from The International Otter Survival Fund (IOSF) (www.otter.org).

Dara, a male Hairy-nosed Otter, had been kept as a fisherman's pet in Cambodia. He ended up in a small illegal zoo, which was closed down by the government. The otter, along with other animals, was [then] donated to Phnom Tamau Zoo near Phnom Penh [Cambodia]. The International Otter Survival Fund (IOSF) on [the Isle of] Skye has an agreement with Phnom Tamau Zoo and Wildlife Rescue Center in Cambodia to fund his care.

Grace Yoxon, of IOSF, said the charity was also providing funds for the care of ten Smooth-coated Otters [another vulnerable otter species]. "Dara is being built a new pen and now a regular fish supply is ensured," she said. Dara is the only [otter] of his species to be kept legally in captivity.

As Dara entered his new home, two Buddhist monks chanted prayers — a Cambodian practice when a family moves into a new house.

Hairy-nosed Otters had previously been thought extinct. They were popular with fishermen in Cambodia, who hunted them for the fur trade. The IOSF is backing a campaign [the fureget-me-not initiative] to help end the illegal killing of and trade in rare otters and their furs in southeast Asia.

Experts with Conservation International [CI], the International Otter Survival Fund and the Cambodian government are pinning hopes for a revived population on the frisky young male. "Scientists recommend establishment of a breeding population in captivity to ensure survival of this species," Annette Olsson, CI's research manager in Cambodia, stated, "Dara could be the founder of such a captive population, if and when we find him a wife, of course." Females should be attracted to his moniker [which] means "precious" or "star" in the Khmer or Cambodian language; his story - he was rescued after his mother was killed by a fisherman; and the large enclosure built for him at the Phnom Tamau Zoological Garden and Rescue Center, located near Phnom Penh [in Cambodia].

"He looks quite satisfied in his new home. Each day, he spends most of his time swimming in the pool and climbing the rock and the wooden structures," said zoo director Nhek Rattanak Pech.

The zoo is [located] about 28 miles (45 kilometers) south of the capital, Phnom Penh [Cambodia].



Photo courtesy of Annette Olsson, Conservation International (CI)

AN UPDATE FROM MISSOURI

By Glenn Chambers



Photo © Jeannie B. Chambers

Dinnertime—it's a handout!

Missouri continues to move forward on the river otter front.

Currently, according to Missouri Department of Conservation [MDC] population models, we have between 12,000 and 13,000 otters in Missouri today. This estimate is down considerably from estimates in 2005 of nearly 18,000 otters. Otter pelt prices dropped from \$125.00 average in 2005 to \$40.00 per pelt in 2007. This was because of the change in the winter military uniform of the Chinese army. The Chinese eliminated the otter military headdress and consequently the demand for otter pelts declined sharply. This reduction in pelt price was subsequently reflected on the harvest of otters in Missouri.

We still have plenty of otters in the state and they are *here to stay!* There has been a significant increase in the number of complaints from farm pond owners recently. There are more than 500,000 farm ponds in Missouri and most of them are stocked with large-mouth bass, channel catfish and bluegill, a perfect winter buffet for an otter! Because some troublesome otters destroy a farmer's personal property (the fish) those landowners are granted permission to eliminate the troublemakers by trapping, shooting or snaring them. The farm pond otter/landowner conflicts increase dramatically in the late fall and winter months because the crayfish, which are staple food in the summer diets of

otters, bury in the mud during the winter and are no longer available for forage. Then, the otters shift to a winter diet consisting of 90% fish—and therein lies the problem.

The University of Missouri and the Missouri Department of Conservation are partnering on a new research project to be conducted in the Missouri ozarks where otter/landowner conflicts have existed since otters were first released in the region in 1982. Rebecca Mowry, a graduate student at MU will begin her study in January in Texas County and will be headquartered out of Houston, Missouri. She will be sampling scat from river otter latrines. Once she has collected the samples, she will genotype each one in the genetics lab in an effort to come up with an accurate population estimate. Using that data, she will try to develop a model correlating population with latrine site counts. This information will help the MDC get a better estimation of the otter abundance throughout their range based on latrine site counts alone. In addition, Rebecca is going to try to determine if river otter abundance affects sport fishing in Missouri ozark streams by comparing otter population estimates with data on fish populations and size classes.

And now about Splash & Slide, who reside at the Chambers' otter lodge! "The boys" are getting along very well. Following retirement from the live otter presentations in which they were the "stars" for more than six years, they have kicked back and have learned to really enjoy retirement. They are routinely privileged to come in the house for an overnight—summer or winter. That, they really enjoy. And they are prone to oversleep; imagine, an otter oversleeping! They, like myself, are mellowing with age!



Photo © Glenn B. Chambers

Splash and Slide answer the wake-up call.

TRAVELING WITH OTTE

By David Tomecek



Photo © David Tomecek

On a recent trip to Ontario, my wife was able to drag me away from the Toronto area's brilliant assortment of aviation museums to head over to the Toronto Zoo. "They've got stuff that flies over there...really!" she told me. Once we arrived, though, I didn't get much time to see anything with wings. That's because we spent quite a bit of time checking out otters—North American River Otters and African Spotted-necked Otters to be exact.

We visited with the North American River Otters first. Technically, they are listed on zoo signage as Canadian otters (*Lontra canadensis canadensis*). Neo and Maria (the male and female on display) were really active that day, frolicking and swimming for the better part of an hour. And once the keepers came out for feeding time, things really started jumping. The two otters romped around in a nicely sized enclosure with a deep pool and plenty of rocks and formed concrete, as well as a tree and other vegetation for shade. One section on the edge of the pool was designed perfectly for a slide. The viewing area has two levels. The upper level is well above the enclosure, so that a good view can be had of the entire area. The lower level is partially below water level in the pool, so viewers can see the otters both on land and in the water. Perhaps the most interesting thing I observed was Maria's swimming and eating habits. She would often swim on her back, using her hind quarters and tail for propulsion. When she was fed, she continued to swim on her back, with her food perched on her chest. I began to wonder if she was part Sea Otter.

After watching Neo and Maria snuggle in under their tree for a little lunch-induced snooze, we traveled over to the African Spotted-necked otter exhibit. Although there are several zoos around North America where African Spotted-necked Otters are housed, this was the first one we had visited. The exhibit space is located within the zoo's African Rainforest Pavilion. It includes quite a bit of vegetation, a pool for swimming and a plethora of nooks and crannies for the otters to play in. What struck me almost immediately was how much less playful the Spotted-necked Otters were compared to other species we had seen. Also surprising was how dominant the male (Fred) was over the female (Ginger). Both of these behaviors are normal for these types of otters, since they are nocturnal and generally solitary in the wild. Fred is so aggressive during feedings that the two have to be fed in separate enclosures. Otherwise, Ginger will lose all her food to Fred.

We left the African exhibit after quite a while, only to realize that it was late afternoon already and we had not yet visited the rest of the zoo! We made a quick run to some of the other exhibits, particularly those with big cats (your Editor's other favorite mammals). With the exception of a few ducks and geese, though, I never did get to see the winged things I was promised...

Newsworthy:

Soon, the Canadian Otters, Neo and Maria, will be moving to a new home at the zoo.

Editor's Note: the staff of The Toronto Zoo were most accommodating during the tour and The River Otter Alliance extends its sincerest appreciation. Extra special thanks go to Corina Chevalier for escorting us throughout the zoo; to Jennifer Martin, Tim McCaskie, Maria Franke and Gabriela Mastromonaco for granting interviews and to Katie Gray for facilitating the tour.

While researching zoological facilities for this edition of *The Journal*, I found The Toronto Zoo. As it is home to North American River Otters, herein referred to as Canadian Otters, and African Spotted-necked Otters, I felt it would make an interesting addition since *Traveling with Otters* had not yet featured a Canadian facility or African Spotted-necked Otters (look for the African Spotted-necked Otter feature in Part II of The Toronto Zoo coming to the Spring-Summer 2009 edition).

As David mentioned, our staff-guided tour began with the Canadian Otters, who were quite active during the mid-morning hours. I was scheduled to meet and interview Jennifer Martin, a Grade II Zookeeper with The Toronto Zoo, regarding the Canadian Otters. Jennifer's passion for the zoo's otters, Neo and Maria, was obvious as she spoke to me about them in detail.

Q: Can you share some of the basic details about Neo and Maria?

A: Neo is 14 years old and he is from the Biodome in Quebec and Maria is 8 years old and she came from Magnetic Hill Zoo in Moncton, New Brunswick. Neo has been with us for three years and Maria has been here for about 18 months.

Q: In the U.S., this species of otter faces threats from water contamination and pollution as well as overfishing. Would you classify a similar set of threats in Canada and are there differing laws in Canada for protection?

A: The Canadian otter is classified as threatened and the species does face a lot of the same issues as in the U.S. They are greatly impacted by pollution and overfishing. Canada has a slight advantage over the United States in that northern Canada provides quite a pristine, untouched area where populations are greater.

By Diane Tomecek

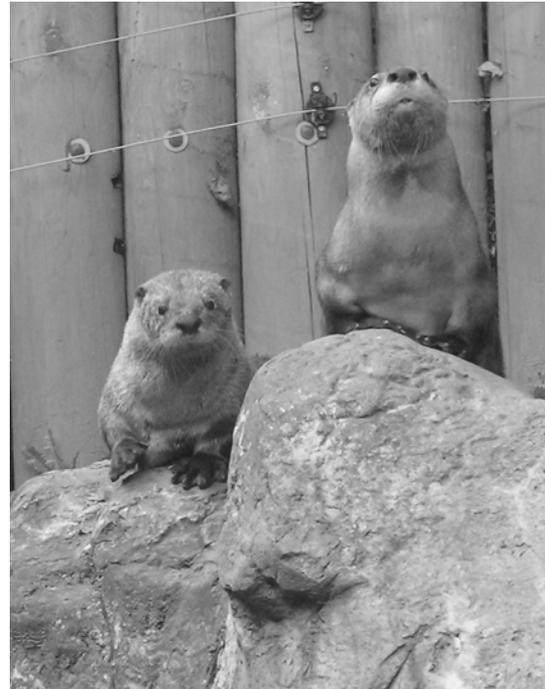


Photo © David Tomecek

Q: What can a visitor expect during a typical visit?

A: The exhibit area is meant to simulate the otter's natural environment; there is mulch which Neo and Maria use to dry off, natural rock and wood as well as a sand pit to mimic sandy riverbanks.

There are three feedings each day—one in the early morning, one at 12:30 p.m. and one just before the zoo closes. Their diet consists of a thiamin supplement to assist with a B1 deficiency, smelt, pieces of hard boiled egg, apples and pears, as well as herring two or three times per week. Incidentally, both prefer the smelt to the herring. Additionally, on the first Wednesday of each month, Neo and Maria feast on crab which they enjoy immensely. Neo prefers to eat on land, while Maria enjoys eating while floating on her back like a sea otter.

One of the best times to visit is in the winter when Neo and Maria are able to create their own slide areas in the snow!

Don't miss Part II of *Traveling with Otters at The Toronto Zoo* in the Spring-Summer 2009 edition featuring a Q&A on the African Spotted-necked Otters and more behind the scenes information.

A DAY IN THE LIFE OF A MARINE BIOLOGIST: TRACKING SEA OTTERS OFF THE CALIFORNIA COAST

PART I

By Tania M. Larson, The USGS Office of Communications

As I arrive at the marina in Monterey Bay, the sky is the dull gray of early morning. A thin fog floats over calm waters, a horizon of glass interrupted by protruding kelp leaves, the occasional emerging head of a sea lion and an otter floating effortlessly on its back. But the sea gulls are starting to call from over head, a few sea lions hauled out on the pier are beginning to bark at each other and the engine of a whale-watching boat is just rumbling to life in the distance.

Both the marine and the human world are waking up, and our small crew needs to hit the water soon if we want to be at the table as the sea otters enjoy their breakfast.

This is my day to live the life of a marine biologist studying sea otters, and I couldn't be more excited. If you love the water, are enthralled by marine mammals and want a job that makes a difference—this is working the dream.

For the morning, I am heading out in a boat to track and observe sea otters in the bay. In the afternoon, I am setting out along the California coastline to spot them from the shore.

I meet up with researchers Tim Tinker and Michelle Staedler, and we immediately begin to load the boat. Snacks, logbooks, life jackets and a jumble of tracking equipment are all stored and secured. Tim is lead scientist for the USGS sea otter research program in California. Michelle is the Sea Otter Research and Conservation Coordinator for the Monterey Bay Aquarium. She also conducts research as a master's degree student at the University of California, Santa Cruz.

And then, we're off on the chase.

We're not looking for just any otter. We hope to find a specific few that the team has been following as part of a study examining how the otters eat and how they raise and train their pups.

Tim drives the boat, while Michelle holds out a VHF receiver,

waiting for the beep that will tell her that one of the study animals is in the vicinity. We haven't gone far when Michelle has located 6-068, so called because that is the otter's radio transmitter frequency. As they suspected, this mother otter is foraging in the local marina.

Like humans, when it comes to dining, each otter has its own favorite dives. One may prefer the crabs and clams at the marina. Another, the delectable sea urchins from a more private spot up the coast. Also like humans, some sea otters use tools when they eat. In areas where otters have to compete with each other for limited food, individuals tend to specialize in particular foraging skills. One otter may focus on finding abalones, another on using tools to crack crab shells. These variations in their foraging techniques help the species to survive.

Our job today is to watch and record the mother otter's behavior, particularly her eating habits: how long she dives, what she brings back to the surface, whether she shares it with her pup, etc. The logbook is precise and detailed.

For each dive, Michelle fills in a grid of information: dive time; successful dive (yes or no for returning with food); types, quantities and sizes of food; handling time of the food; and full surface time. To measure the size of the food, they compare it to the width of an otter's paw, which on average is 5 centimeters. So if it is the size of one paw, the food is rated a one; of two paws, two; and so forth.

No matter what the otter is doing, we keep the stopwatch running.

The mother appears at the surface, and Michelle begins scribbling. The otter has returned with a clam, one paw width, roundish. She handles it for 6 seconds, and then dips beneath the surface.

When she reappears, she has a collection of food. Otters will often use their abdomen as a makeshift serving tray, and they

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Photo by Tania Larson, USGS

Interesting Note:

Sea otter researchers, Michelle Staedler of The Monterey Bay Aquarium and Tim Tinker of The USGS, look out over the ocean, trying to determine if a dark patch in the water is in fact the otter they are looking for. The two researchers work together to study sea otters and support conservation efforts. Tim drives the boat, while Michelle holds the VHF receiver, waiting for the beep that will tell her that one of the study animals is in the vicinity. As the receiver starts to beep, they both begin scanning the water, looking to spot the otter.

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can pile it high with goodies. She chomps down on a fat innkeeper worm. When she's finished, she offers a morsel of something to the pup. The pup refuses it. Again, she offers it to the pup, and again the pup declines. She dives back down to hunt for tastier fare.

"She's keeping the good stuff for herself," Michelle comments. "Whatever she just offered the pup, neither of them wanted to eat."

Michelle records all of these details to help scientists understand how much the individual mothers invest in their pups, how much energy they expend in finding food and whether different investments, energy expenditures and nutrition affect the success rates for the mothers. Sharing food is considered a big part of the mother's "investment" in the pup.

In order to develop a more precise understanding about this investment, Michelle has been investing a lot of time herself. Depending on the number of females in the study who have pups, she does anywhere from two to seven activity budgets per week, watching for all the big firsts for the young otters. Each budget is a 6-hour session of collecting continuous data on a mom and pup pair from shore. Over the length of the study, she is learning when the pups stop nursing and when they begin to dive, to use tools and to forage on their own.

Scientists have found that the mothers teach the tricks of their favorite trades to their young, passing on not only the specialized skills, but their specialized diets. If the mother uses tools, the pup will use tools. If the mother has a penchant for crabs, the pup will develop one too.



Photo by Tania Larson, USGS

A sea otter pup watches eagerly as its mother eats a fat innkeeper worm in Monterey Bay, California. Scientists are studying Sea Otters, their diets and how they raise their pups in efforts to help the threatened species continue to recover from near extinction.

Scientists are wondering if these individualized diets are the secret to success for some otters and the road to ruin for others. They hope that seeing where and what otters eat will shed some light on the recent rise in the mortality rate of California Sea Otters.

Don't miss Part II of *Tracking Sea Otters off the California Coast* in the Spring-Summer 2009 edition...

DYLON PATSCHKE'S SCIENCE PROJECT CONT'D

(Continued from page 3)

end, is one third of its body length, making the tail incredibly good for balancing. With streamlined bodies, webbed toes and long tails, it is no wonder these animals are extremely powerful swimmers.

An otter needs both stable, well-covered land and slow, flowing water to provide a good habitat. As the water, whether lake or stream, provides the food source, it must have plenty of food. An otter's diet consists mainly of crayfish and slow moving fish such as suckers, catfish and carp. Being opportunistic when it comes to its diet, the otter will often feast on whatever is abundant and easy to catch, eating up to 15-20% of its body weight daily. Hopefully this abundant food supply coincides with well covered land and good shelter. An otter does not build its own shelter. Being resourceful, shelter is usually a beaver bank den, which it may even share with the beaver. If there is no den, otters will look for a log jam or bank cover, consisting of rocks and logs or riparian vegetation, in which to set up a den. Security is found in a habitat that has the right balance of food and riparian vegetation.

As its resourcefulness would indicate, the otter has a unique character. Because of its shape, the otter's aquatic motion is very graceful and fluid. In the water, otters are powerful swimmers, swimming at speeds up to 11 kilometers per hour; and expert divers, staying underwater for up to 6 minutes to depths of up to 20 meters. Less spectacular on land, otters tend to waddle and move with a gallop motion. However, this does not prevent curiosity or playing with one another. When at play, they are very active, wrestling and chasing each other in a constant stream of motion. But observe the play quickly, because the otter is a very shy and elusive animal, preferring to be nocturnal but also enjoying the dawn and dusk hours. More obvious are the otter's habits [regarding territorial areas]. Each area having a specific purpose—a rolling place: a bare patch where it rolls in the dirt, grooms, and dries off; slides: [providing] a quick belly access to the water; runways: well-defined paths that link waterways and land facilities and latrine sites: places usually rocky or elevated where otters [urinate or defecate] and spraint—mark their territory with a scent. All of this is evidence that the otters are clean animals [and is further emphasized] by grooming often to maintain the insulation of hair.

(Continued on page 10)

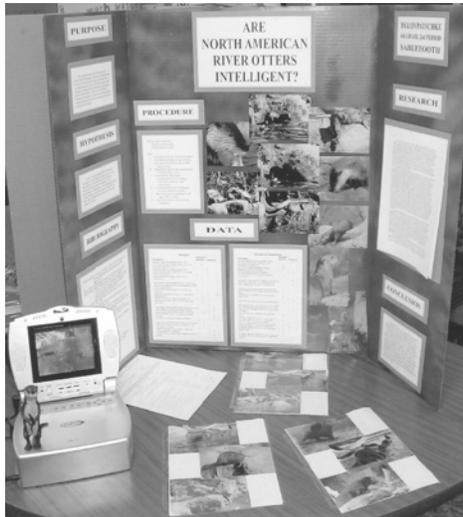
DYLON PATSCHKE'S SCIENCE PROJECT CONT'D

(Continued from page 9)

[This hard work] can create an appetite for dinner. When an otter hunts, it uses its whiskers to sense prey; then it ambushes the prey, and at last catches [the meal] with its teeth. As long as there is food, the otter will stay within [its territory], but should the food source become depleted or move, the otter will emigrate with its prey, traveling long distances if necessary.

Though traveling may be as individuals, otters can also be very social. Otters may hunt together, and some will stay in family groups for extended periods of time. Sometimes the family will spread out over a long range but still be co-located, sharing or overlapping territories. Should the food source become depleted, each otter's willingness to share [decreases], causing the family to separate and [inhabit] a non-overlapping territory. Otters are ready for this independence when they mature [to approximately] the age of two. Until that time, the otter is nurtured and taught to hunt by its mother. Pups are born blind, fully furred and toothless

weighing [approximately] 4.6 oz. The mother will nurse the pups for 12 weeks, during which time they will open their eyes (1 month) and learn to swim (2 months). By the age of three, an otter will reach its full weight and length and exhibit its unique otter character.



Dylon's science fair project

Distributed throughout North America now, otters were extirpated from most places in the midwest, including Colorado, by the 1900s. This was mainly because of fur trapping, mining and habitat destruction. As more people moved out west, the otter's habitat became polluted, [there was a] loss of riparian vegetation and humans' need for building and recreation increased. Between 1976 and 1991, otters were translocated to the Colorado River (Rocky Mountain National Park), the Dolores River, the Gunnison River and the Piedra River. To help ensure the otter's survival, Colorado implemented a management plan and passed strict laws regulating trapping, improving water

quality and restricting recreation. As a result, the otter is repopulating territories it once occupied. Who knows, the next time you are out by a stream, you may see an otter.

Data	Intelligent Behavior	Behavior
sensitive to environmental changes like water quality or water flow- ie. pollution, low water levels	X	
sensitive to smallest disturbance in their territory	X	
emigrate with food source—even over long distances	X	
adapt to changes in food source—adjust diet to what is plentiful	X	
sense (smell) danger—will take a wide route around	X	
mother prepares nursery, nurtures pups, teaches survival		X
know what is dangerous and what is not		X
aware of presence and habits of others in their territory	X	
shy and elusive		X
use whiskers for sensing movement of prey		X
cautious and curious about new things in environment, investigate	X	
resourceful in finding new ways to do things	X	
slides for quick entry into the water		X
fur well groomed for insulation		X
can delay impregnation for up to 12 months based on their health, food source and environment health, ensures conditions are optimal for survival	X	
lives in harmony with other living beings providing balance to ecosystem	X	
in captivity, feel things with mouth		X

Editor's note: Dylon's research and observations included extensive data that he categorized as *intelligent behavior* or simply *behavior*. A random sampling is published above; if interested in his full data set, please contact *The River Otter Journal* editor via e-mail at ladybug2137@hotmail.com.

Conclusion: I was able to prove my hypothesis that river otters are intelligent animals. In fact, otters have very heightened intelligence which is evidenced by sensitivity to the slightest change in environment, such as water quality, food source and habitat stability. Intelligence is also substantiated by the behavior of sharing territories with other otters, sharing resources with other animals such as beavers and emigrating with food sources. Consequently, we can learn from otters when an environment is unhealthy, then restore and maintain a balance, not only for otters, but for other wildlife.

OTTERS AT LIBERTY IN NEW MEXICO RIVERS

By Melissa Savage



Photo © James Stuart

The first river otters to swim in the rivers of New Mexico in 55 years dove into the clear waters of the Rio Pueblo de Taos [on Taos Pueblo] in mid-October of this year. Five wild otters from the State of Washington tentatively poked their noses out of holding pens, then dashed for the water, circled around, and disappeared into the wild. The otters were released into the river three miles above the confluence with the Rio Grande, as the first of many planned releases for the state.

The release took place on Taos Pueblo land, and was the culmination of years of effort by Taos Pueblo, New Mexico State Game and Fish Department, the US Bureau of Land Management and Friends of River Otters, a coalition of New Mexico citizens, scientists, agencies and conservation organizations. A key person in the success of the release was Darren Bruning, a former Taos Pueblo staff person now located in Washington State.

Additional releases are planned for the Upper Rio Grande [later] this fall and next year, and for the Gila River in the southern part of the state in the future. The Rio Grande, with a long stretch of deep gorges and protected wildlands, is an exceptionally safe habitat with abundant food supplies for the relocated otters. It is hoped that the restoration of this important aquatic predator will help to restore the ecological integrity of our rivers. The otters may also provide thrilling sightings to the many members of the public—hikers, campers and river runners—who cherish the natural heritage of our bosques and rivers.

This is very exciting news for New Mexico. River otters were historically native to the state's rivers, including the Rio Grande, Gila, Chama, Mora, San Juan and Canadian Rivers. New Mexico is the last state, where the otter had been extirpated by trapping and other human activities, to have reintroduced otters into the wild.

Photo © James Stuart

SPECIAL POINTS OF INTEREST:

- River otters were occasionally mentioned in the journals of early settlers.
- “Protecting and restoring native wildlife is important to the heritage and ecology of New Mexico and one of the main roles of the Department of Game and Fish,” said Department Director Bruce Thompson.
- There have been no confirmed sightings of river otters in New Mexico since 1953.
- “We are so thrilled to see this species back in New Mexico,” said Linda Rundeli, state director for the Bureau of Land Management. “We are working with partners throughout the state to restore watersheds and wildlife habitat; the icing on the cake comes when we can restore species like the river otter to their rightful place in New Mexico.”
- “This was a great collaborative effort among many agencies and groups. We are thrilled that after over eight years of work this dynamic creature is once again calling New Mexico home,” said Rachel Conn of Amigos Bravos and New Mexico Friends of River Otters.

Note: The facts and quotes above were compiled from a report by Rachel Conn of Amigos Bravos and New Mexico Friends of River Otters.





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