



U.S. Fish and Wildlife Service

COLUMBIA CONSERVATION CHRONICLE

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*On the Cover: Erosion exposes the gnarly root mass of a hollow cottonwood (*Populus deltoides*) tree on the upper Illinois River . Photo credit: Patty Herman, USFWS.*

*Above: Pallid bolete (*Boletus pallidus*) mushrooms can be found growing in oak woods throughout Missouri. Photo credit: Rick Hansen, USFWS.*

One Piece at a Time

One piece at a time, Johnny Cash built a car that way in one of his classic songs - slowly smuggling out all the necessary parts over a period of years. In fact, many great things are built slowly, one piece at a time. The great pyramids of Egypt and the Transcontinental Railroad come to mind. Likewise many of our greatest ecological successes come together in a similar fashion. For example the Bald Eagle was recently removed from the threatened and endangered species list. This recovery took decades of scientific research, legislation, education and public support – many small steps that added up to a big victory. Also, our treasured National Wildlife Refuge System began in 1903 as the single 5-acre Pelican Island Refuge. Today there are 556 refuges conserving more than 95 million acres. It was built one piece (refuge) at a time.

Currently, one of the most vexing environmental problems we deal with is the continued spread of invasive Asian carp. The geographic scope, complexity, and potential ecological and economic impacts of this invasion make for a large-scale challenge with no single, easy

solution. Like many of the ecological challenges of the past, progress on this problem will likely be made slowly - one piece at a time. Monitoring, research, development of new fishing gears, public education and increased harvest are all potential pieces of the solution.

History tells us that humans can drive fish populations to decline through overharvest. The collapse of the cod fishery in the North Atlantic is a classic case of demand for a fish outweighing the supply. While overharvest of a species is usually a negative, it can also serve as a model for controlling invasive species. Unfortunately, there is little current demand for Asian carp as a food fish in the United States; therefore, there is little economic incentive for commercial fishermen to harvest them. At present, the supply of Asian carp far outweighs demand. The trick then becomes convincing Americans they should be eating Asian carp – a tough sell, given that we, as a country, don't consume much fish to start with, and historically "carp" has been something of a four letter word, filled with negative connotations. Changing this perception will likely take some creative rebranding of the



An invasive Silver Carp leaps from the waters of the Missouri River. Photo credit: USFWS.

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Asian carp product, coupled with a successful outreach campaign targeted at the general food buying public. There are more than 300 million people in the United States, if only one percent were eating Asian carp on a regular basis, that could probably put a dent in the problem.

I recently had the opportunity to teach a class on cleaning and cooking Asian carp at the Wonders of Wildlife National Outdoor and Recreation Conservation School in Columbia, Missouri. While the students had certainly heard of and seen videos of Asian carp (a.k.a., them jumpin' carp), they were surprised to learn that the Silver and Bighead carps shared little in common with Common Carp – other than a name. Students marveled at how firm and white the meat was – very different from the Common Carp. They were also surprised to learn that Asian carp flesh contains many of the same health benefits as tuna and salmon, but is likely lower in heavy metals (because Asian carp are planktivores they are less prone to biomagnification of heavy metals). But what to do with all the bones? Students practiced a couple techniques for removing the numerous Y-bones which Asian carp fillets contain, and within a short time we had several pounds of lean protein ready for cooking. The smell of frying fish even drew in other WOW participants who were interested in a taste test. Both the fried carp and the carp tacos were quickly eaten. Hopefully these students will continue eating this surprisingly good tasting fish and spread the word, helping us create a carp eating coalition.

In this time of escalating grocery prices in which

many families struggle to prepare healthy meals, Asian carp should be considered as a source of lean, inexpensive protein. If you live near a large river in the Midwest and have a boat, you then have easy access to all the Asian carp you could possibly eat, and it wouldn't even cost you a dime. Maybe Asian carp can be controlled one delicious piece at a time.

Colby Wrasse
Fisheries



Asian carp are an underutilized source of protein and nutrition in the United States. Though bony, the white flesh is a healthy and inexpensive alternative to tuna and salmon. Photo Credit: USFWS.

For tips on filleting and preparing Asian carp, please visit these links:

Flying Fish, Great Dish (Part1: Introduction & Removing Filets) <http://www.youtube.com/watch?v=T1NVUV8yhmU>

Asian Carp—Filleting & Cooking http://www.youtube.com/watch?v=aU_JSKwVUOE

Dirk Fucik demos Asian carp burgers http://www.youtube.com/watch?v=Hkc_rzhLRUg

Failure in Endangered Species Reintroduction

“The only real mistake is the one from which we learn nothing.” - Henry Ford

We failed. Well, more precisely, we don't know if we failed or not. As Fish & Wildlife Service biologists, we are encouraged to write about our experiences and share them with the public, in venues such as this one. I was planning to write up my positive experience with our second

a couple days previous. We had double the number of people from last year show up (surprisingly) to handle rotten quail carcasses and dig holes in the ground. Roughly sixty people came out, most likely drawn in by the aforementioned great weather, but probably also because the St. Louis Zoo had organized such a smooth reintroduction event last year. And things went great this year as well. We dug three



St. Louis Zoo staff show volunteers the proper way to place an American Burying Beetle into the ground. Photo credit: Rick Hansen, USFWS.

reintroduction of the endangered American Burying Beetle into southwest Missouri. After all, our first reintroduction went very well, and our beetles not only reproduced but survived a record drought year, and their offspring were found this spring. The event started off well: it was overcast and in the 70s, and the soil was still soft from rain

hundred 18" holes in 3 sites on a scenic prairie ablaze with wildflowers. Volunteers placed rotten quail in each hole, followed by a male and female beetle. The holes were re-filled, and scavenger-repelling fencing was staked over the holes. We all retired, in good spirits, to a nearby shelter, where we enjoyed food and beverages provided

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by the Zoo.

The next morning the rains came, about 1.3" in a couple hours. The Zoo staff and I drove out to the three sites to see our holes were filled with water, and witnessed 7 beetles tunneling out before they were drowned in their underground chambers. There was nothing we could do, so we left. We had planned to monitor the beetles' reproduction by digging up some of the holes and counting the larva after 10 days, so that's what we did. We were devastated. Roughly 80% of the brood chambers had been abandoned, and 13 beetles were found dead. Of the brood chambers we dug up, only three had broods in them, and those were small in size and number. Our only consolation was that the majority of beetles had

apparently escaped, and that it was possible that the beetles could fly back to the abandoned chambers to re-use the quail carcasses.

Failure is something that happens regularly, and it is human nature to not broadcast it. But failure makes for a great teacher, and informs our future decisions. For next year's reintroduction, we will hold two events a couple weeks apart, and put half of the beetles into the ground at each event. This will, of course, double the coordination effort for the supplies, volunteers, beetle transport, etc. However, this extra effort should insure that an unforeseen event like this gully-washer will not impact all of our reintroduced beetles.

Scott Hamilton
Ecological Services

eDNA: U.S. Fish & Wildlife Style

During the week of June 17-20th three Fish and Wildlife Conservation Offices (Alpena, LaCrosse and Columbia) teamed up to complete an eDNA sampling round from start to finish. In the past, the U.S. Army Corps of Engineers (COE) provided staff for filtering which was performed in a U.S. Environmental Protection Agency lab in downtown Chicago. This time all the COE had to provide was a parking place. Steve Gambicki, from Alpena FWCO, pulled the new filtering trailer through the gate at the COE's T.J. O'Brien Lock and Dam on Monday. Not only is O'Brien staffed 24 hours a day, but their boat ramp is situated perfectly for easy access to Lake Calumet, where a large number of samples were collected. Nick Bloomfield, Louise Mauldin and Jenna Merry came representing LaCrosse FWCO. Nick and Louise joined Steve on the filtering crew while Jenna accompanied Brett Witte and Jordan Fox from Columbia FWCO to collect the water samples. For each of two days, 60 2-liter

bottles were filled from the Chicago Area Waterway System and covered with ice. The collection crew would then meet Nick and he would take the ~160 pound coolers to the trailer for filtering. Another 60 water samples were then collected and delivered to the filtering trailer by the collection crew. Early morning starts for the collectors led to early evening wrap-ups for the filterers. The Alpena and Columbia crews



Coolers used to store and transport water samples collected in the CAWS for eDNA analysis. Photo credit: Heather Calkins, USFWS. 6

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returned to their respective domiciles in the same manner as they arrived. Filters laden with eDNA rode home with LaCrosse, though, headed for the Whitney Genetics Laboratory at the LaCrosse Fish Health Center. From start to finish, it was an eDNA event saturated with the U.S. Fish & Wildlife Service.

*Brett Witte
Fisheries*



Alpena Fish and Wildlife Conservation Office's new mobile eDNA filtering lab. Photo credit: USFWS.

Cross Programmatic Conservation of the Indiana Bat

On June 14, 2013, Fish and Wildlife Biologist Shauna Marquardt accompanied Special Agents Greg Jeffers and Matt Rogers, from the St. Louis area, to a project site in Wildwood, Missouri. City managers and residents in the area wanted to confer with the Service about potential impacts to Indiana bats and their habitat from tree removal proposed by a utility company. Special Agents



Indiana bat roost tree at Babler State Park - Photo Credit: Shelly Colatskie.

Jeffers and Rogers contacted Marquardt because they were uncertain what should be considered suitable habitat for Indiana bats. Upon inspection of the project site, Marquardt determined that the trees slated for removal were not of the age, size, or structure to provide roosting opportunities for Indiana bats.

Jeffers and Rogers were interested to know more about the ecology and roosting habitat requirements of Indiana bats to better prepare them for situations similar to the Wildwood project in the future. The greater St. Louis metropolitan area offers many opportunities to view high quality habitat for Indiana bats. Babler State Park, just around the corner from the project site, is known to be occupied by at least one maternity colony of Indiana bats. The forest at Babler State Park is a prime example of high quality, mature forest, and Marquardt was able to show Jeffers and Rogers examples of maternity roosting habitat, as well as different types of roost trees that could be occupied by colonies of Indiana bats. This was a great opportunity to share information among Service employees who serve very different roles in the agency, but who can provide cross-program support to benefit our trust resources.

*Shauna Marquardt
Ecological Services*

April Showers: What it Means for the CAWS

Columbia FWCO was scheduled to send an electrofishing crew to the Chicago Area Waterway System (CAWS) for above-the-barrier fixed site sampling on the week of April 21st.

However, on April 18th, more than 7 inches of rain fell on parts of Chicago causing massive flooding and widespread power outages. Another side effect of heavy rains in the Chicago area is what is termed a “Combined Sewage Overflow” (CSO). These overflows contain not only stormwater but also untreated human and industrial waste, toxic materials, and debris. With all that unsavory input, protocol dictated that sampling be postponed. A week later, Brett Witte, Jeremiah Smith and Jordan Fox found themselves headed to the Windy City to complete the scheduled fixed



Brett Witte carefully navigates through barge slips and around bridge pillars to complete fixed site electrofishing in the CAWS. Photo credit: Heather Calkins, USFWS.

site sampling. What ensued was very similar to previous trips - loooong periods of the prop digging into gravel and banging on rocks and concrete in Lake Calumet, a loooong boat ride up to Wilmette pumping station before shocking the North Shore portion of the CAWS, and a loooong boat ride to pick up the random sites between fixed sites, to cover nearly 70 nautical miles of the Chicago Area Waterway System. Over 3,500 fish were sampled representing 30 species, including the state threatened Banded Killifish. All in all, the trip was successful with all the sites covered and no Asian carp seen.

*Brett Witte and Patty Herman
Fisheries*

Columbia FWCO Bids Farewell to Zack Brock

For the first time in his adult life, a new job has taken Zack to an old state. Our resident Georgian, a Columbia fisheries technician for the past 19 months, has returned home. Prior to Columbia he had done fisheries work in Alaska, Colorado and Tennessee. That list now includes Missouri and he is back home in Georgia. Here in Columbia Zack wore several hats with two of the most prominent being safety liaison and shop manager. With all of his prior fisheries

experience and strong work ethic he needed very little training during field work. Zack also brought an easy smile and ever-positive attitude that made him a pleasure to work with. Needless to say, the Georgia Department of Natural Resources made a very wise pick with Zack Brock.

*Brett Witte
Fisheries*

Upcoming Events

Photography exhibit by Noppadol Paothong featured at Rozier Gallery, Jefferson Landing State Historic Site

The Missouri State Museum and Rozier Gallery will present the work of Noppadol Paothong, staff photographer for the Missouri Department of Conservation. The exhibit, sponsored by Missouri State Parks, will share images from Paothong's book, "Save the Last Dance – A Story of North American Grassland Grouse." It will also include some of Paothong's favorite images that showcase the beauty of wildlife and nature. The exhibit will run through Aug. 31. The Elizabeth Rozier Gallery is located in the Union Hotel at Jefferson Landing State Historic Site, 101 Jefferson Street, Jefferson City, Mo., 65101. The gallery is open Tuesday through Saturday, 10 a.m. to 4 p.m.

For more information, contact the Missouri State Museum office at (573) 751-2854. For more information on Missouri state parks and historic sites, go to mostateparks.com. Missouri State Parks is a division of the Missouri Department of Natural Resources.

Big Muddy Speaker Series—Rocheport

August 13, 2013 - "Prehistory of the Lower Missouri River" presented by Joe Harl, Archaeological Research Center of St. Louis. For more information, please visit <http://bigmuddyspeakers.org/>

Missouri River Relief Clean-Up Event

Saturday, August 17, 2013—[Glasgow Missouri River Clean-up 2013](#), Stump Island Park, Glasgow, MO. Glasgow is a beautiful, historic river town perched on a bluff above the Missouri River. It has the "oldest continuously operated library west of the Mississippi" and is located on the "sharpest bend on the Missouri River". It probably has the highest percentage of residents that are proud to call themselves "river rats". A perfect place to clean-up the river. We need all the help we can get and hope you can join us!

Clean-up Time: 9:00 a.m. to noon. Registration begins at 8:30 a.m. ([sign-up online HERE](#)»)

Clean-up Headquarters: The boat ramp at Stump Island Park in Glasgow, MO. Directions below.

What we're doing: Boats will ferry volunteers to the river banks and islands to pick up trash that has washed up on shore. Other volunteers, including youth groups, will pick up trash along the banks, trails and parking lots.

What you get: Volunteers will receive a free boat ride, t-shirt, trash bags, gloves, lunch and reusable water bottle.

What to bring: Weather and work appropriate clothes. Long pants are preferred as weeds and poison ivy can be thick. Sturdy shoes or boots. No flip-flops or open-toed shoes allowed on boats. Sunscreen and bug spray.

U. S. Fish and Wildlife Service

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