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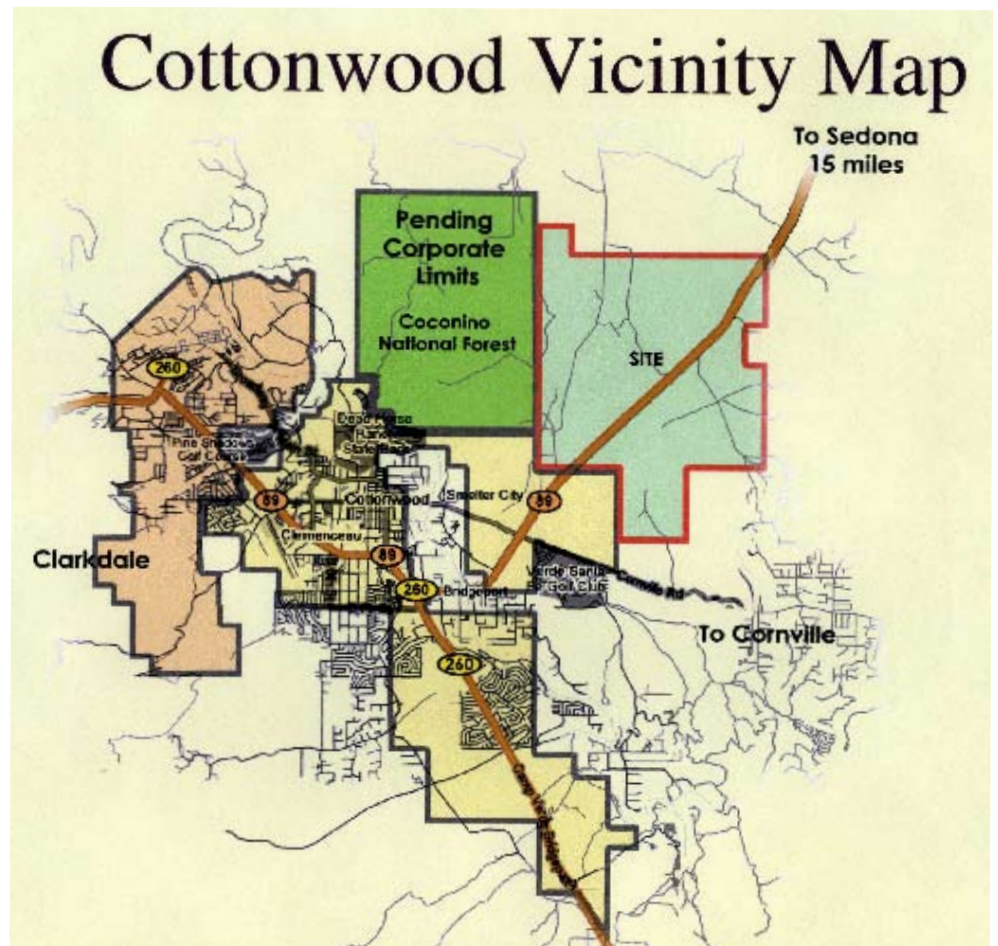
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COTTONWOOD CONSIDERS ANNEXATION NORTHEAST OF CITY

The City of Cottonwood presented a plan at a public hearing on April 28, 2009, for a proposed annexation of approximately 10 square miles of State Trust land straddling State Highway 89A immediately northeast of the City's

northeast boundary. An additional eight-square-mile tract of Coconino Forest Land immediately west of the State Trust Land is also under consideration for annexation.



A PowerPoint presentation by consulting firm Coe & Van Loo and given at the hearing is available on the City's website (<http://www.ci.cottonwood.az.us>) and is the primary source for this

article.

The proposed project in the area of State Trust Land envisions a population at build out of 52,323 people occupying

(Cont'd on Pg 2)

Annexation *(Cont'd from Pg. 1)*

23,050 dwelling units (2.27 persons per household). Estimated potable water demand for the project, which includes low-, medium-, and high density residential development, a business park, commercial space, schools, and open space, is 7.4 million gallons per day (MGD) or about 141 gallons per citizen per day (GPCD). However, the plan suggests that conservation and water reuse, including installation of plumbing for reclaimed water utilization at each residence for irrigation and dual plumbing, could reduce the potable water demand to 3.8 MGD or about 73 GPCD. Current (2006) GPCD for the City of Cottonwood, as presently estimated by the Central Yavapai Highlands Water Resources Management Study, is 147.

The plan envisions obtaining the needed water from wells drilled on site. Such wells will tap groundwater that is en route to the Verde River, and that water extraction would be expected to eventually reduce Verde River base flow by between approximately 8,300 acre-feet per year, (about 11.4 cfs) for the full 7.4 MGD demand, and 4,260 acre-feet per year (about 6 cfs) for the 3.8 MGD demand envisioned under rigorous conservation and reuse. These values represent, respectively, about 14.5 and 7.4 percent of the average annual base flow entering the Verde Valley as

recorded at the Clarkdale gage.

Cottonwood's proposal has raised a red flag with some of its neighbors. The State Trust land is within the area of the Cornville Community Plan which was approved by Yavapai County in 2005 and won a Governor's award for the makeup of the Plan. Judy Miller, retired public land manager and Chair of the group that prepared the Cornville Community Plan expressed questions and concerns in an op-ed column in the Verde Independent:

(<http://www.greatercornville.org/files/Cottonwood-AnnexationNeedsOurAttention.pdf>)

Officials of the Town of Clarkdale expressed the desire for communication and coordination on such a large proposal affecting the Verde Valley.

All involved agree that the State Trust lands are constitutionally set aside for revenue generation and that the State must "enhance value and optimize economic return" on these lands. Referendums to provide more leeway for management and disposal of State Trust lands, including some conservation set-asides, have failed in several recent elections. Although it may be well into the future, the potential for residential and commercial development with negative effect on water resources is certainly present.

Prepared by Ed Wolfe and Loyd Barnett

Membership Form for the Verde Watershed Association

Government units	\$ 100 per year
Business for profit	100 per year
Civic groups and non-profits	50 per year
Individuals	25 per year

Make check payable and mail to:

Verde Watershed Association
P.O. Box 4001
Cottonwood, AZ 86326

Name: _____ Phone: _____

Mailing Address: _____ Fax: _____

City, State, Zip _____

E-mail address to receive the Verde Currents E-Newsletter:

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STILLMAN LAKE RESTORATION TO BEGIN

In a June 10 press release the U.S. Fish and Wildlife Service and the Arizona Game and Fish Department announced that they—with assistance from Prescott Flycasters and The Nature Conservancy—will begin a native-fish restoration effort at Stillman Lake. The restoration project can proceed following a 45-day appeal period that concludes at 5 PM, July 27, 2009.

Stillman Lake is an elongate, narrow, perennial, spring-fed pool about 20 acres in area in the upper Verde River Canyon close above the mouth of Granite Creek. It is separated at its downstream end from the rest of the perennial Verde River only by a bar of sand and gravel formed by floods from Granite Creek. Flood events originating above Stillman Lake commonly overtop the bar and continue down-river. The project goal is restoration and enhancement of native fish, including the razorback sucker, roundtail chub, and other native fish.

The remainder of this is taken verbatim from the press release.

“The Verde River, including its assemblage of unusually adapted desert fish, is uniquely Arizona,” said Shaula Hedwall, FWS biologist. “Restoring a source population of Verde fish species is a milestone in making the river whole again and achieving species recovery.”

“This is an important step in future management of native species in the Verde River,” said Andy Clark, fisheries program manager for the Game and Fish Kingman office.

“It’s exciting to be a part of this effort.

“The lake will provide a refuge for native fish following removal of non-native predators and serve as a source of native fish for downstream areas.”

Clark explained that through recurring flood events, larval and young native species will disperse downstream throughout their historical range.

“Stillman Lake currently harbors common carp and flat-head catfish, which limit native species recruitment and survival. Once these species are removed, native fish will have a chance to grow and this ‘sanctuary’ will provide a better opportunity for survival downstream following high

flows,” Clark said.

Stillman Lake, part of the Game and Fish Department’s Upper Verde River Wildlife Area and The Nature Conservancy’s Verde River Springs Preserve south of Paulden, does not attract many anglers in relation to other regional and statewide locations for sport fish recreation.

“It’s ideal for a restoration effort such as this,” Clark said. “Those who enjoy sport fishing aren’t going to be heavily impacted by this effort. In fact, those who use this area should be excited about the prospect of angling for roundtail chub, also known as Verde trout.”

Agency personnel and local angler volunteers will make an effort to salvage native and sport fish prior to chemically removing remaining non-natives. Salvaged native fish will be moved downstream from Stillman Lake while sport fish will be relocated.

Rotenone will be used to eliminate any remaining fish. The chemical is short lived and will not impact wildlife, human populations, or fish downstream from the lake.

“The mention of chemicals is often viewed negatively,” Clark stated. “However, rotenone is important in the removal of non-native fish. This project can’t be successful without the removal of non-native predatory fish and this was determined to be the safest and most effective way to remove them.”

The lake will be closed during the treatment period, which will be about three days. Reintroduction of native species will occur after monitoring efforts show the removal of non-native fish was successful.

The agencies met with local angler groups and conducted a public meeting, and the FWS has completed an environmental assessment and approval for the project.

On-the-ground efforts can proceed following a 45-day appeal period that concludes 5 p.m., July 27, 2009.

Those wishing to view the restoration plan should visit the FWS website at <http://www.fws.gov/southwest/es/arizona/> or call (928) 226-0614, ext. 203.

Prepared by Ed Wolfe

FOREST SERVICE PRESENTS AWARD TO VWA

At the May 20 meeting of the Verde Water Shed Association (VWA), Dee Hines, representing both the Prescott and Coconino National Forests, presented the VWA with the 2008 Verde Valley Stewardship Award “for outstanding work in support of National Forest programs”.

The VWA recognizes and greatly appreciates the major role that the National Forests play in management of the Verde Watershed and also appreciates this recognition from the Forest Service.

Prepared by Ed Wolfe

INTERESTING NEW MASTER’S THESIS

Newly available: Brown, Rachael C., Decisionmaking and Discourse: Interest Group and Government Interaction in the Verde River Watershed, Arizona; Master’s thesis in Environmental Sciences and Policy, May, 2009.

Available at:

<http://www.watershed.nau.edu/files/news/brownthesis09-1.pdf>.

CHINO VALLEY AND U.S. F&WS AGREE TO COOPERATE IN UPPER VERDE PROTECTION

The Town of Chino Valley and the U.S. Fish and Wildlife Service (FWS) signed a memorandum of understanding (MOU) on May 28, 2009. The MOU calls for cooperation in preventing or minimizing damage to endangered or threatened species and their habitats along the Verde River that might stem from the Town's eventual importation of ground water from Big Chino Valley and possible return of treated effluent to the valley. The MOU states: "The Town is committed to ensuring its actions do no harm to the water resources, hydrology, species, and habitats of the Verde River."

Some highlights from the MOU:

--The Town agrees to confer with FWS in developing its water development plan in terms of assessing potential impacts to the Verde River, its native species and habitats, and cooperate with FWS to remove or reduce impacts.

--The Town agrees to share its monitoring plan regarding proposed pumping, cone of depression, the extent of the area monitored, and affected groundwater levels for FWS review and comment, and will work with FWS to resolve issues prior to finalizing the plan.

--FWS will share historic, current, and future monitoring reports and data with the Town regarding the status and trends of species and habitat along the Verde River that may be impacted by the water development plan.

--The parties will work in good faith to identify additional monitoring needs, data gaps, and potential impacts from the Town's water development plan, and will work cooperatively to address these information needs, including seeking to develop separate funding agreements or providing in-kind services.

--The Town has initiated development of a sustainability "mitigation" plan that will provide a source of water for recharge back to the groundwater aquifer from which pumping occurs. Providing funding is available, the Town will include a hydrologic study as part of this plan to determine

if the currently proposed recharge site and practicable engineering technology will be effective at offsetting the effects of pumping on the Verde River.

--The Town plans to work with state and federal agencies to generate a groundwater model within part of the Big Chino aquifer that will be used to show the net effects of the pumping and recharge system through time. The groundwater model would include the impacts of cumulative pumping from current and projected future sources within the aquifer to the groundwater system and potential changes to natural aquifer recharge that could be due to climate change, current and future development, or other factors through time. The FWS may propose specific model components to assist in the data interpretation, future monitoring, and prediction capabilities. The Parties will work in good faith towards development of the model.

--If groundwater pumping may result in the take of Federally-listed species, the Town will consider applying for an incidental take permit through a Habitat Conservation Plan (HCP). The Parties understand that preparing a HCP is a voluntary process. The Parties understand that other entities also plan to import water from this basin and that cumulative pumping from the aquifer could affect the Verde River, endangered or threatened species, and their habitats. These effects must be considered in a biological opinion and other documents associated with the HCP, but effects caused by activities outside of the Town's control would not be a mitigation responsibility for the Town.

--If the Town applies for an incidental take permit, FWS agrees to work with FWS Region 2 to expeditiously process the application as long as sufficient cooperation with the Town on data analysis, recommendations, and planning has occurred during the pre-application process.

--The MOU is in effect for five years. It may be modified or renewed upon written agreement by both parties. It may also be terminated at any time by mutual agreement or by 30 days advance notice by either party.

Prepared by Ed Wolfe

Arizona's Otters Slide to Safety

Imagine yourself on the edge of one of Arizona's sub-Mogollon streams in the quiet light of a dying afternoon. Translucent waters hurry toward a rendezvous with the Verde River as the leaves of ashes, alders and sycamores rustle overhead. Dragonflies hover purposefully along the banks. Somewhere upstream, a kingfisher rattles.

Suddenly, the river's surface boils as if a large fish were about to appear. Your eyes transfixed on the circles of expanding ripples, you briefly view a brown, dog-like creature that rolls over and disappears as suddenly as it arrived. That you have just seen a river otter doesn't occur to you for several seconds, when you remember reading that otters were reintroduced to the Verde River in 1981.

River otters once inhabited several of Arizona's streams, and there are historical records of these animals in the Verde, Salt, Colorado and Little Colorado rivers and their tributaries. Museum specimens of Arizona otters were obtained from the lower Colorado River and the Verde River, where Dr. E.A. Mearns of the U.S. Army obtained two specimens in 1886 and 1887, one from Montezuma Well and one near Peck's Lake.

What happened to our state's native otters is uncertain. Never numerous, otters periodically were decimated by floods, droughts, stream diversions and spates of turbulent water. Unregulated trapping undoubtedly took a toll, as fur prices for this species were highly lucrative at several times in the state's history. Although classified as furbearers, otters also were deemed a menace to trout. There are second-hand accounts of otters being killed as fish predators. Otters, which prefer clear, running water, also are susceptible to pollution. For whatever reason, stream surveys in the 1970s showed that otters no longer occurred in Arizona.

Because the Verde River remained relatively intact above Horseshoe Reservoir, and the stretch between Chasm Creek and Sheep Bridge was designated a "wild and scenic river," a decision was made in 1981 to restock the Verde with wild-trapped otters from Louisiana. The purpose was not so much to provide a harvestable resource as to partially restore Arizona's biodiversity.

The transplant was a cooperative effort between the Arizona and Louisiana wildlife management agencies. John Phelps, a biologist with the Arizona Game and Fish Department who specialized in furbearers, spearheaded the project, enlisting the participation of Tom Britt from the department's Flagstaff office, Rich Glinski from Tucson, wildlife manager Rob Young, helicopter pilot Karen Key of KOOL-TV, an Air Service contract helicopter and personnel from the Louisiana Department of Wildlife and Fisheries.

With approval from the Tonto, Prescott and Coconino national forests, 20 otters arrived by plane June 9, 1981.

These hefty aquatic weasels were wrapped in wet burlap, caged in special compartments and hauled from Phoenix to Cave Creek, Ariz., in air-conditioned trucks, where they were loaded into helicopters. Landing at pre-arranged sites, the otters were distributed upstream from Horseshoe Lake to Chasm Creek below Camp Verde, Ariz.

The otters took to the river, well, like otters to water, sliding off the stream banks, rolling in the shallows and diving in the pools. Although a few otters later died from infections and being caught in fishing nets, reports of living animals indicated at least some survival. Otters can be secretive animals, however, and few sightings were documented by subsequent investigation. When a second release of 26 otters was scheduled for February 1982, radio transmitters were implanted in the animals' peritoneal cavities.

To give the otters more time to recuperate from surgery, the animals were held in individual cages in the Flagstaff office warehouse. Employees stashed a load of carp from Peck's Lake in snowbanks around the Flagstaff office to be doled out to the ravenous otters to facilitate their recovery. Displaying good appetites, the otters ate every fish presented and clamored for more, requiring a major cleanup effort once the animals were released. Once the otters were given a clean bill of health and released, they spread rapidly; before long, department employees were enjoying the sight of otters chasing smallmouth bass in the clear waters of Fossil Creek. Other sightings followed — some of multiple animals. After an absence of nearly 100 years, otters had returned to Arizona.

The purpose of the otter releases in the early 1980s was to re-establish a population of river otters on the Verde, a goal that is now secure. Today, river otters live along the entire Verde River drainage system from Perkinsville, Ariz., to Granite Reef Dam, including Oak Creek, the East Verde River west of Payson, Ariz., and other tributaries. Fresh otter sign also was found by a biologist studying garter snakes along Tonto Creek.

Although the otters' take of game fish mostly is negligible, otters now have transcended the "neat to see" category and become nuisances in some areas. This is especially so in the vicinity of the Page Springs Fish Hatchery along Oak Creek near Cornville, Ariz. That otters eat trout is no surprise, but their acclimation to the hatchery has become problematic, requiring the capture and relocation of a number of animals.

Three options, or a combination of these options, are available for the future management of Arizona's river otters. The first option is an active translocation program. The current population of river otters is well-established and capable of supplying stock for a limited program of this type,

(Cont'd on Pg 6)

Otters *(Cont'd from Pg. 5)*

once suitable streams are identified and prioritized.

As part of a translocation program, surplus animals could be captured and used to repopulate historic ranges along the upper Salt, Gila and Colorado rivers. This already is happening: The state of New Mexico is planning an otter transplant to the upper Gila River in the southwestern part of the state. Animals from Arizona's population could repopulate historic otter range in both states, including portions of the Salt River designated "wild and scenic," and the Imperial National Wildlife Refuge, where otters have not been documented for more than 50 years.

A second management option involves a more traditional method of removal. Otters, like beavers, muskrats, raccoons and a handful of other mammals, are furbearers that can be harvested in limited numbers within the framework of existing trapping regulations. As with bobcats, otter populations are subject to treaty regulations that allow for a limited, regulated harvest. Otter pelts presently bring a good price, and many other states manage their otter populations through a limited trapping season.

The third possibility is a continuation of the current management program, which allows otter distribution to grow on its own, while treating individual problem otters as depredation animals. Under this program, we can expect otter distribution to expand slowly (if at all), with local populations sometimes increasing to a point at which problem animals must be trapped and taken by department personnel.

Whatever option is chosen, additional captures and releases will be necessary if the otter is to continue to be a species emblematic of our state's diverse biological heritage.

David Brown, who started working for the Arizona Game and Fish Department in 1961, has recently edited a new book, "Arizona Wildlife, The Territorial Years 1863-1912." Department biologist Ron Day specializes in predators and furbearers.

-- *By David E. Brown and Ron Day*

(Article reprinted courtesy of the Arizona Game and Fish Department's magazine, Arizona Wildlife Views July/August issue.)

At Home on Land and in the Water

Larger members of the weasel family, otters are adapted to an aquatic life. They have an elongated body with a streamlined tail that tapers from a thick base to a pointed tip. Their densely furred coat is rich chocolate-brown in color, with lighter-colored whitish underparts. Adults generally weigh between 12 and 20 pounds, with large males weighing as much as 25 pounds. Overall lengths range from about 3 to just over 4 feet.

Although the animals themselves seldom are seen, otter sign is easy to identify. Their distinctive clawed tracks are rounder than those of a beaver and possess the elongated toes of a raccoon. These aquatic mammals form "slides" along stream banks where they enter the water, and their clawed tracks regularly are found next to or in the slide. Being members of the weasel family, otters have a strong musty odor. Another very distinctive form of otter sign is their dog-like scats. Commonly deposited on a flat rock in the middle of a stream, these are composed of a mass of fish scales and crawdad fragments.

Otters usually breed in late winter or early spring, but due to delayed implantation, the young may not be born for up to a year. Dens are located in natural shelters under rocks, logs, flood debris or in hollows dug into river banks. "Permanent dens" used for pup-rearing usually have an underwater entrance with a passage leading into a nesting chamber lined with plant material. Litter size varies, but usually consists of two or three pups. The fully furred young are helpless at birth and do not open their eyes for the first month of life. Weaning requires approximately three months, after which the young disperse. Sexual maturity is attained between 2 and 3 years of age and individual animals have been known to live in captivity more than 20 years.

Adult males generally are solitary, while females often are accompanied by their young. Most otter movement occurs at night, when the animals hunt (mostly by sight and by touch). Their diet consists of fish, waterfowl, eggs, turtles, crawfish and occasionally small mammals such as muskrats.

Though otters are common throughout the Verde River drainage, their densities and home ranges have yet to be studied in Arizona. Research in other states has shown otter numbers depend largely on habitat quality and vary considerably. Maximum reported densities of male otters are about one otter per mile of stream. Finding and maintaining a suitable territory with enough food is probably the primary limiting factor for otters in the Verde River drainage. Otters have few natural predators.

— *by Ron Day*