



Friends of the San Pedro River Roundup

February 2012

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President's Report

By Ron Serviss

We all know that 2011 was a difficult year for the Friends of the San Pedro River. The never-ending law suit drained many of us of our energy and enthusiasm for working with the BLM. We don't seem to be any closer to resolution (see article, page 2). There hasn't been any public effort by BLM to correct the situation and our letter sent to the head of BLM in Washington, DC a month ago has gone unanswered. Fortunately, the River is still there in all its seasonal beauty and all we need to do is spend some time walking its banks to be reminded of why many of us work so hard on its behalf.

Then, there were the fires. While these had little direct impact on the River, they did impact many of our members and friends and at a time when it was already difficult for many of us.

But we are now into 2012, which is looking like it will be a most significant year for the Friends. We have a functioning nature club at the Sierra Vista high school. While it got started late in the school year, those of us involved with it are optimistic that it will help solve the problem of getting our young people out into nature and bringing some much-needed youth energy into our organization. A big THANKS to Julie and Rick and the Buena teachers for getting this started (see article, page 2).

We have a dedicated, hard-working group developing some presentations on the hydrology

of the San Pedro. There will one program aimed towards younger students that will utilize podcasts and lesson plans, and a second PowerPoint presentation that can be shown to various organizations. Both programs will explain how our River works using video shot by our own Mike Foster and why the long-term health of the River is in trouble.

And finally, 2012 will be the year that FSPR hires its first full-time manager. While we will still rely on our many dedicated volunteers to continue our docent walks and staff our two museum/book stores, we will be able to expand our efforts as stewards of the San Pedro River.

On behalf of the Board of Directors, I want to thank you for all your past efforts and look forward to seeing you in 2012.

May 5 International Migratory Bird Day/Spring Festival at SPH

Plans are underway for this year's celebration that will feature events for both adults and children. The day will include a river walk, several bird walks, and a hike to a beaver dam. Presentations scheduled in the ramada behind SPH so far are Native & Xeric Plants (9 AM), Connecting People to Bird Conservation (10 AM), and Build Your Own Rainwater System (11 AM). Lots of kids' activities will be held throughout the day. As this issue went to press, more events were being developed. Call 520-508-4445 or visit the FSPR website at www.sanpedroriver.org closer to May 5 for details.

Lawsuit Update

I'm sure many of you are wondering about the status of the lawsuit filed against us last year, where a guest rider fell from her own horse during one of our sponsored trail rides and sustained an injury. Unfortunately, there is not a lot of new information to report.

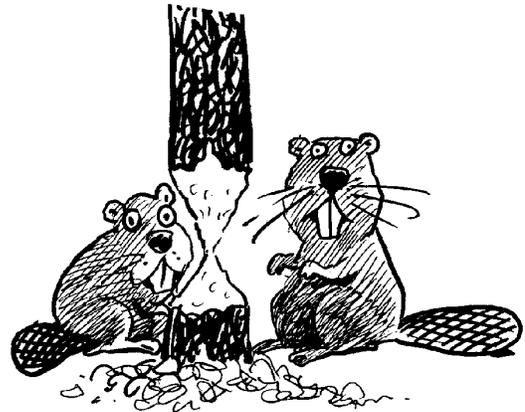
Our petition to keep our case in Federal court, based on the fact that we were acting as agents of the Federal government, was heard in October 2011 by US Magistrate Judge D Thomas Ferraro. The main proceedings were our attorney argued that the equestrian ride had been verbally approved by the BLM manager at a FSPR Board of Directors meeting, as had been the practice for over 20 years. The government attorney argued that the event was not under the "direct supervision of a Federal officer." The magistrate sided with the government.

In accordance with Federal procedure, the Magistrate Judge submitted a report to the US District Judge (to whom this case is assigned), recommending that the case be sent back to the Tucson Superior Court. Our attorney filed an objection to this report, arguing that the case must be heard in a Federal court and that the magistrate was mistaken in his conclusion. Our motion was filed with the court over 3 months ago, on November 15.

To date, the US District Judge has not ruled on this issue. If she rules against us, her decision cannot be appealed and we will then begin to prepare our defense for a jury trial in the Superior Court in Tucson. If she rules in our favor, we will immediately ask the court to remove us from the case, as it will now be between the plaintiff and the Federal government.

We will also be seeking to have the Federal government compensate us for the legal costs we have incurred while trying to get BLM to meet its obligation to certify us as an agent of the Federal government. To date, these costs have exceeded \$20,000.

We will let you know as soon as we hear any further information.



LET'S DO LUNCH.

Nurturing Nature & Raising Friends: Students, Teachers & FSPR Volunteers Team up to Study Nature

By Julie Bradley

"What a great field trip, man. Usually, we go to a museum, look at something, and go home," he said. "But this is all outdoors and we can really get the feel for things."

"It's hard to tell the students from the teachers," said an FSPR volunteer. I mentally agreed and did a headcount. Once we sorted out roles and names from our group of 20, seven were students, four were Friends' volunteers, two were from the Sierra Vista Herald, and, to our surprise, seven local teachers showed up.

Wearing jeans, an oversized tan shirt, and a straw hat with a chin strap, Mike Foster, our field trip leader, looked the part of a naturalist as he warmed up our group with a little background information about the history of beavers along the San Pedro River. Ron Serviss, FSPR president, followed up with a safety briefing, and then we were off on the first hands-on portion of our Hands on the Land-funded field trip. But we didn't get too far.

One of the students engaged Sandy Kunzer, who was returning some Murray Springs artifact replicas to the San Pedro House, and asked, "What are those arrows from?" With a questioning look at Mike, Sandy got the go-ahead on a "teachable moment" and the kids got a brief but visually gripping five-minute run-down on the Clovis culture, their weaponry, and local history along the River. It couldn't have happened better if we'd planned it that way!

Along the River, Mike and Ron answered questions about natural history that the teenagers and teachers posed. We stopped periodically to give the group time to take it all in. They were asking good questions and eager to drink from the fire hydrant of natural history available from Mike about “all things beavers.” They had the right field guides in the right place! Thanks to Mike, Ron, and the cleverness of those dam builders, the beavers have 19 new fans — even if we didn’t get so much as a peep at our crepuscular (sounds nasty!) furry friends.

I think it is safe to say that our first field trip was a success. A couple of teachers asked if they could ask other teachers to attend field outings, and the reporter asked if he could accompany us on future outings. He said he “learned a lot about a lot.”

Ron Serviss and I had a mini “focus group” with a sophomore Nature Club member. She said that one reason she really liked the club was that we “did things during the meetings and have field trips.” So far, during the school meetings on Tuesday afternoons, we have had a briefing on Sky Island habitat by Rick Romea, as well as a briefing on the San Pedro River and the FSPR by Ron Serviss. Next meeting, we will teach the kids how to use binoculars and spotting scopes, then walk them out to the pond (who knew!) in back of Buena High School so they can get some practice using the field pieces before Rick takes them on their first birding adventure. We will gather a list of club member requests for field trips to publish in the high school newspaper and make flyers to post around school to help spread the word. You can never have too many “Friends!”

[Editor’s note: FSPR volunteers, in conjunction with BLM’s Hands on the Land Program and Buena High School, recently formed a Nature Club for teenagers in Sierra Vista. Here is the link to the Club website: www.sierravistapublicschools.com/Buena/Search/Nature-Club.]



*FSPR booth at Master Gardeners Convention.
Photo by Dutch Nagle.*

Master Gardeners Convention

By Dutch Nagle

The Master Gardeners held their convention at the Windemere Hotel on February 16-17. The convention drew between 125 and 150 people. Between seminars, they rushed through the exhibits and sales areas.

The FSPR bookstore set up a sales display featuring a large selection of plant books, as well as a sampling of our regular stock. Other booths were for the U of A Bookstore, jewelry sales, plant sales, Water-Wise, and convention-specific items.

Many attendees stopped at our booth and the purchases they made were much more than expected. We were surprised that about half of our sales did not involve plants, which shows the diversity of the people’s interest.

All in all, it was a good experience for the attendees and the sales booths. If you belong to a local group that is connected to a larger organization, please remind them that Sierra Vista is a great place to hold a convention.

Special April Bird Walks Celebrate Migrants

FSPR docent John Broz will lead a morning bird walk every Wednesday in April, to take advantage of the spring migration through SPRNCA. Warblers, tanagers, and gray hawks are among the river of birds that are heading north. Meet at SPH at 7 AM. The walks are estimated to last 3 hours and cover 2.5 miles.

Capacity-building Program

By Ron Serviss

Late last year, FSPR was awarded a three-year, \$160,000 Capacity Building Grant from the Conservation Lands Foundation (CLF). The purpose of this grant is to help the Friends of the San Pedro River implement its goals for the next three years, as defined in our newly developed Strategic Plan, and to improve and expand its capabilities for serving the San Pedro Riparian National Conservation Area (SPRNCA).

These funds will be used primarily to hire a full-time, paid manager. It has become clear during the past year that our Friends group has become too large and too active to be managed solely by volunteers. The duties of the president in particular encompass far more than can be expected from a volunteer. The Board also feels it needs to be far more active in being an advocate for our River. The time required to monitor and participate in government activities that impact the River is way beyond what can be reasonably expected of a volunteer. Once we have a job description in place, we will send out a request for applications and the membership will be notified.

The funds will also be used to provide training for our Board of Directors, as well as other southern Arizona Friends groups. This training will include fundraising, donor recruitment, grant writing, membership expansion, interfacing with government agencies, and other activities that are vital to the success of our organization. You do not have to be a Board member to participate in this training, but you do need to have a strong desire to be involved in our Friends group. The first training will occur in Tucson on March 9-10 and will concern fundraising. If you are interested, contact me at serviss.ron@gmail.com.

FSPR Librarian Needed

As most of you are aware, Mike Guest moved to Oregon. What you may not have known is that he was our librarian. Mike recorded all our docent reference material and kept track of who had signed it out and when it was returned. We need someone to take over this function. It should take a very small amount of time. Contact Chris Long at fspr@sanpedroriver.org.



FSPR Members Question BLM at Public Hearing

By Sue Leskiw

What began as a somewhat dry scientific presentation by members of BLM's National Riparian Service Team (NRST) segued into a venting session by local residents, who expressed fears that the agency would paint too rosy a picture about the state of the San Pedro River and the time left to save it.

Over 50 people attended a February 9 public hearing held to identify current conditions and future potentials of the San Pedro. Besides BLM staff, FSPR members represented a significant proportion of those in the room. Others identified themselves as property owners, concerned citizens, recreationists, ranchers, developers, teachers, reporters, photographers, and members of the Sierra Vista Environmental Affairs Commission, Hereford Natural Resource Conservation District/Upper San Pedro Partnership, Community Watershed Alliance, Huachuca Audubon Society, or the WaterWise Program.

Ted Mouras, Dr. Gary (Gerald) Noonan, Dutch Nagel, and Gene Fenstermacher were the main voices calling for BLM's final report to include limitations on the River reaching its future potential: mainly, water table lowering through well drilling and loss of aquifer recharge. Cattle grazing and brush proliferation that decreases water yield were cited as other factors affecting the state of the San Pedro, as well as government reticence to take action. It was opined that both authority and interest are needed to do something: do the City of Sierra Vista, Cochise County, the State of Arizona care? Dr. Noonan posed the question, "Would most residents care if the River dried up tomorrow?" Developer Frederick Willets replied that he thinks people care, but voters need to be educated.

During the formal presentations, members of the NRST explained that they came to Cochise County at the request of the BLM field office to assess the River and “facilitate the development of a common vision and shared strategy for managing riparian resources within the San Pedro Riparian National Conservation Area (SPRNCA).” The meeting presented the team’s findings after the first phase of this effort.

Janice Staats of the NRST said a major goal is to get people to understand the concept of Proper Functioning Condition (PFC): where vegetation, landform, and large woody debris interact to slow river flow and provide values important to people. BLM’s standard is to meet or move toward PFC, along a continuum from minimally acceptable condition to maximum potential — the “best the River can be” — with values ranging upward from grazing and watershed to recreation and endangered species protection.

Mark Gonzalez of the NRST reviewed the San Pedro’s Holocene history, plant communities, and water storage and release (“making a better sponge”). He explained that the River is in its infancy of the channel evolution sequence. The San Pedro changed at the end of the Little Ice Age in the 1880s from a low-energy stream meandering within a broad floodplain lined with marshy cienegas to a high-energy, downcut incision located within a narrow canyon. Factors in this entrenchment were overgrazing, deforestation, regional climate shift, and an 1887 earthquake that lowered the water table.

Plant communities along the River stratify by “how hard it is to get a drink,” both in depth to and seasonality of water. Development of the riparian forest over the past 50 years has moderated large floods and caused sediment to fill in (aggrade) the channel at some locations. Vegetation slows water flow and increases infiltration, while incorporation of organic matter (e.g., woody debris) permits soil to hold more floodwater for subsequent release as base flow. “Floods are really good for the San Pedro and shouldn’t be discouraged,” said Gonzalez. Beaver dams also enhance bank storage and release of surface flow.

The loss of water storage from spreading and elevating water into banks since the 1880s has been dramatic. When the River flowed across a wide valley, with thick sediment dominated by silt and clay, an estimated 50,000 acre-feet

were stored. When the San Pedro changed to an entrenched narrow stream, sediment thinned and was dominated by coarser material (e.g., sand), reducing water storage to approximately 4,000 acre-feet. “The San Pedro has been operating for more than 100 years storing 4,000 instead of 50,000 acre-feet,” explained Gonzalez.

Local BLM staff noted that they understand the frustration of citizens, but individual efforts to help the situation — such as the agency’s on-the-ground activities like agricultural pumping reduction, conservation easements, and brush treatment — should be celebrated. The NRST report is limited to examining the River channel and floodplain, but not the adjoining uplands. The SPRNCA Resource Management Plan that will incorporate NRST results cannot ignore the regional aquifer, but must include cumulative and connected effects that are beyond the agency’s control. Under SPRNCA’s authorizing legislation, BLM must periodically revisit whether cattle grazing should be allowed there.

Starting April 10, the NRST will spend 10 days walking 40 miles of the River. Members of the public are invited along, but need to contact BLM about the physical effort required on each day’s walk. On April 9-10, pre-assessment community workshops will be held to prepare for these field assessments. A final report is expected by the end of August, with a public workshop to present the results scheduled for September 17.

For more information, contact Ryan Pitts, BLM Gila District, rpitts@blm.gov or 520-439-6409.

Board Vacancy

A vacant seat remains on the Board of Directors. We normally meet the second Tuesday of each month from 6-8 PM at the BLM office in Sierra Vista. If you would like to know more about the responsibilities of Board members, please contact one of our Board members. **NOTE:** If you are concerned about any liability you might incur as a Board member, particularly given the recent lawsuit, FSPR carries full directors and officers liability insurance, so you would not have any personal exposure. We also have liability insurance to cover all of our docents and volunteers during FSPR activities. If you care about the San Pedro River and enjoy our many activities, there is no better way to serve those interests than being a Board member.

At the Fairbank Schoolhouse

by Sally Rosén

Volunteering at the Schoolhouse continues to be fascinating, rewarding, and a great learning experience.

On a recent weekend, I met a woman visiting from South Dakota who had taught in a one-room schoolhouse. That brought to mind one of my personal heroines, Laura Ingalls Wilder, who as a 16-year-old also taught in a one-room schoolhouse in South Dakota. We chatted for quite awhile about Laura and about the woman's experiences in her school.

On another day that weekend, the volunteer Kathy noted that of her 41 visitors, two were mediums and five were "ghost hunters"! I can't wait to talk to her about that experience.

On the final day of the weekend, I had a real "feel-good" experience. A group of six adults and 14 children (ages 3 to 19) came into the schoolhouse in the afternoon. They had been at the town site since 9 AM, walking the trails and picking up trash for the FSPR. They had four bags full. Their leader explained to me that they were the "San Pedro Spirits 4-H" from Hereford and this is something they do on all of their hikes as part of their community service education. What good citizens they will be! It was fun watching the kids enjoy the schoolhouse before they left for home.

These are experiences from just one weekend. There are times when some of our folks who lived in Fairbank or went to school there drop by. We have fascinating conversations. There are visitors from other places who want to get information about the SPRNCA and Cochise County and they are very grateful for whatever we can tell them. There are horseback riders who go slowly through the town, giving us an idea of what it might have been like 100 or more years ago. I could go on and on.



We have a group of dedicated volunteers who feel the same way as I about the Fairbank Schoolhouse. They are willing to go the extra mile — literally. Yes, Fairbank is further from most of our homes than San Pedro House, but the experience is truly worth it.

We could use a few more volunteers who would like to give a few hours for two or more shifts a month. Training does not take long. You can bring a partner to share a shift (quality time with your spouse or friend). If you would like to try it out, contact us at schoolhouse@sanpedroriver.org.

What's Going on at the Bookstore?

By Sue Leskiw

One meets the most interesting people while staffing the San Pedro House bookstore. Some are locals, like the couple who had gone to four stores before they found an early J.A. Jance mystery at SPH, or the woman who giggled with delight while she tested out all the animal finger puppets before purchasing a beaver and an eagle for her nieces/nephews, or the woman who dashed in as I was closing up to buy a Clif bar before walking the trails. Many are visitors from other states or even other countries. Two women from England on a bird tour who independently selected gold roadrunner Wild Bryde earrings to buy. Snowbirds from Wisconsin, with whom I reminisced about my years living in Milwaukee and attending UW-Madison. A woman seeking advice on which western bird field guide to purchase. RVers looking for directions to the Murray Springs Clovis site. I'm always surprised by how many bookstore patrons either have been to my hometown of Eureka, California, or at least know that it's on the coast near Oregon!

Some days, visitors are few and far between, with "under-\$20-a-shift" sales to match. Those are the days when I get deep into my paperback! Conversely, once in a while, you ring up an individual sale near \$100, when the patron is both a bookworm AND seeking sun-protective clothing. Either way, my Tuesday afternoons are never boring at the SPH bookstore.

The dedication of the bookstore volunteers is truly amazing; as I peruse the monthly schedule, I see individuals signed up for all-day shifts or showing up faithfully once a week. As the



(Above) Copper ornaments by Jan Campbell.

(Left) Victorian bird matchboxes by Ruby Odell.

Photos by Sue Leskiw.

president of a Friends group back in Humboldt County, I know first-hand that our nature center bookstore has difficulty filling staffing slots just on weekends (a city-employed naturalist handles weekdays). So kudos to the reliable SPH volunteers – if you’d like to join us, contact manager Laura Mackin at 520-508-4445 or sanpedrohouse@sanpedroriver.org.

When was the last time YOU visited the bookstore? It’s the perfect opportunity to shop local and financially support FSPR. Don’t forget the 10% discount for members (and 15% for volunteers). There are some new offerings by local artists: copper ornaments in the shape of a quail, turtle, hummingbird, dragonfly, butterfly, or javelina by Jan Campbell of Hereford.

Matchboxes sporting Victorian bird drawings (quite a challenge to decipher the names of the Old Word species!) by Ruby Odell of Bisbee. On February 7, Laura got in a shipment of small pottery pieces from Mata Ortiz, Mexico that are colorfully decorated with birds, butterflies, or lizards and sure to sell fast. And there’s always something different on the sale table in the back room, with items marked down 30-50%. Bookstore hours are 9:30 am to 4:30 PM daily.

Ramsey Christmas Bird Count Highlights

By Ted Mouras & Robert Weissler

Exceptionally dry winter/spring conditions, a record freeze in early February, and the Monument Fire significantly impacted the Ramsey Canyon count held December 17, 2011. The number of species recorded — 145 — is the lowest since 1998, but given the reduced number of birds in the canyons, it’s still very respectable. The total number of birds counted — 15,664 — was well above our 12-year average.

Species diversity and numbers remained about average along the River. In the canyons — all but one of which within our circle was burned this year — diversity and numbers were considerably reduced from past years. But bird numbers in the mesquite grasslands and oak savannahs were as high as or above 2010’s high numbers. Raptor numbers were well above average.

Peregrine Falcon, White-winged Dove, Eurasian Collared-Dove, Chipping Sparrow, Pyrrhuloxia, and Hepatic Tanager had record or near-record highs. Some interesting species from this year include Ferruginous Hawk, Sandhill Crane (only the 3rd time on the count), Least Sandpiper, Ruddy Ground-Dove (8th time recorded), White-throated Swift, Blue-throated Hummingbird, Costa’s Hummingbird, Broad-tailed Hummingbird, Rufous Hummingbird, Elegant Trogon, Gilded Flicker, Mountain Bluebird, Townsend’s Solitaire, Sage Thrasher, Townsend’s Warbler, Botteri’s Sparrow, Black-chinned Sparrow, Cassin’s Sparrow, Hepatic Tanager, Scott’s Oriole, Cassin’s Finch, and Lawrence’s Goldfinch. Seven Hepatic Tanagers were spotted, continuing an upward trend in the number of these birds wintering here.

Of equal interest are species that were not seen, several of which are reported nearly every year: Golden Eagle, Montezuma Quail, Williamson’s Sapsucker, Vermillion Flycatcher, Pygmy Nuthatch, House Wren, Yellow-eyed Junco, and American Goldfinch. We also had record or near-record lows for Hutton’s Vireo, Phainopepla, and Hermit Thrush.



We thank the 71 participants in this year's count, which included 11 new people. One thing that jumps out from the data is that just about every team and even many feeder watchers reported at least one species either not seen by anyone else or reported by only one other team/person. Next year's Ramsey Canyon count will be held on December 22. Good birding in 2012!

Celebrate Arizona History Month at the Presidio

On Saturday, March 17, join FSPR for an interpretive walk at the Spanish Presidio Santa Cruz de Terrenate, an important historic site within SPRNCA. As the Spanish extended their empire out of Mexico, they established a Presidio (fortress) along the San Pedro. Construction began in 1776. Learn about the Presidio and why the Spanish abandoned the fort in 1780. The walk is about 3 miles (round trip) and will take about 3 hours. Be prepared for the weather with good shoes, water, and a hat. Meet at 9 AM at the Presidio parking area off Highway 82 near Fairbank, west of the San Pedro River, 1 mile north on In Balance Ranch Road (mile marker 60).

Statistics for 2011

Below are how many amazing hours FSPR volunteers spent in various types of activities:

- ☛ Educational Contact Hours = 5,707
- ☛ Visitor Contact Hours = 4,670
- ☛ Administrative Hours = 1,522
- ☛ SPARC = 230

Total Hours = 12,129

Based on estimates by http://independentsector.org/volunteer_time, which cites an hourly rate of \$21.36, these hours are worth \$247,706.58.

Based on BLM volunteer equivalents (1800 hours = 1 staff person), this is the equivalent of 6.44 full-time staff.

Memorial Bricks

Friends of the San Pedro River is proud to offer the opportunity to place a memorial brick in our Dedication Walkway located at the San Pedro House. Have a memorial brick engraved in memory of a friend or loved one or to honor a special person or business. Three sizes are available:

- ☛ \$100 — 10" x 10" brick
- ☛ \$200 — 10" x 15" brick
- ☛ \$300 — 10" x 15" brick (with graphic)

Bricks can contain up to 6 lines of text, 15 letters each line; graphic can be up to 4" x 4".

Application forms are available at:

- ☛ San Pedro House, 9800 E Highway 90, Sierra Vista
- ☛ FSPR Office, 1763 Paseo San Luis, Sierra Vista
- ☛ 520-459-2555; fspr@sanpedroriver.org; or www.sanpedroriver.org

The Friends of the San Pedro River, Inc is a nonprofit organization. The amount given for the commemorative brick is considered a contribution and is tax deductible. The proceeds of this endeavor will be used to support the San Pedro Riparian National Conservation Area.

New & Renewing Members, October 2011-January 2012

Vince Abrahamson; Mary Bonds; Cynthia Adams Bonnett; Susan & Steve Bortman; Bonnie Bosworth; John Broz; Henry & Marjorie Conroy; Nancy Docherty; Nancy Doolittle; Elaine & Melvin Emeigh; Robert & Elizabeth Erickson; Bette & Dan Ford; Bret Galloway; Tricia Gerrodette; Ryoko Gill; Ernest & Debbie Glenn; Dave Heck; Bob Herrmann; Francis Hills; Judith Hipper; Kathy Holland; Nancy Elkins & Dave Katsuki; Rosemary King; Alice Klarke; Sandy & Rock Kousek; Tom & Sue Leskiw; Sharon & Lee Luker; Inga McCord; Miriam & Michael Moss; Ted & Melanie Mouras; Eva Nagy; Frederick & Mary Raje; Susan Raymond; John Rose; Angel Rutherford; Heidi Schubert; Larry & Marti Selman; Ron Serviss; Gary & Lavinia Spivey; Ron & Renell Stewart; Tasha & Aril Stewart; Jacob Stoita; Natalie Sudman; Robert & Liza Weissler; Ted White

Myth Busting along the Upper San Pedro River

By Gerald R. Noonan, PhD

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This paper examines six beliefs about the Upper San Pedro River — from the Mexican border north to The Narrows north of Benson — and discusses scientific and historical data that show some are myths and others are facts.

1. The extensive forests of cottonwoods and willows growing in many places along the San Pedro River are not natural. False!

This claim possibly arises from observations that the San Pedro River acquired much of its current extensive forests during the 20th century. However, cottonwood fossils from Whitewater Draw in the Sulphur Springs Valley show that these trees have been in southeastern Arizona for more than 8000 years (Waters, 1983). The increase of cottonwoods and willows along the San Pedro from the 1920s onward (Noonan, 2011a,b) is part of a natural alluvial cycle. The terms “alluvial cycle” refer to all significant changes that occurred in southwestern waterways and in the riparian habitats bordering them because of the formation of arroyos, followed by their coalescing and widening and subsequent narrowing and filling with sediment.

There have been at least six prehistoric and one historic alluvial cycle in the southwestern United States (Waters and Haynes, 2001). At the start of each alluvial cycle, most waterways were scarcely cut into the surrounding countryside. During normal floods, water flowed over adjoining land without cutting deep channels. The banks of these waterways were marshy in many places. Trees did not form the extensive gallery forests now found along many southwestern waterways. Instead, they occurred as scattered groves or individual trees because of the absence of suitable habitats for establishing seedlings. Cottonwood and willow seeds and seedlings require moist, bare areas of mineral soil on which to germinate and start growth (Dixon, et al., 2009; Friedman and Lee, 2002; Friedman et al., 1995; Scott et al., 1996; Stromberg, 1993,1998; Stromberg, et al., 2009; Webb et al., 2007). Generally, these habitats are

generated by scouring floods that occur within arroyos.

Within relatively short periods, exceptionally large floods cut waterway channels deep into the surrounding countryside and formed arroyos. These floods removed most plants normally found along southwestern waterways. The arroyos deepened and widened.

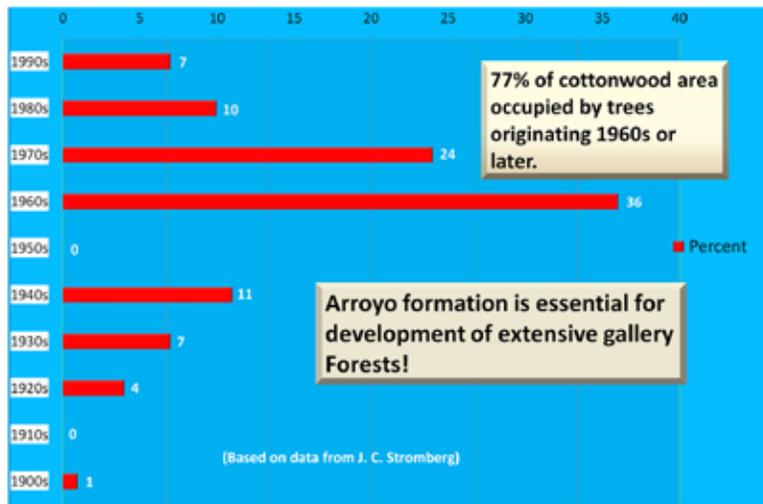
When the exceptionally large floods abated, sediments began to be deposited along the edges of the bottoms of the arroyos. These sediments formed low-lying benches called terraces that were subject to scouring by normal-size floods. Such floods produced extensive moist mineral areas with suitable habitats for tree seedlings. Gallery forests arose in most riparian areas having perennial water flow.

The deposition of sediments over long periods eventually resulted in waterways returning to being shallow and flowing across landscapes without significant arroyos in most areas. Suitable habitats for trees again became relatively sparse. In time, arroyo cutting would begin another alluvial cycle (Mann and Meltzer, 2007; Webb et al., 2007; Webb and Hereford, 2010).

Along the Upper San Pedro River, arroyo cutting, deepening, and widening took place from approximately the 1880s into the 1920s (Hereford, 1993; Hereford and Betancourt, 2009; Huckleberry, 1996; Turner et al., 2003). The arroyo development was associated with periods of unusually heavy rain. Favorable flood conditions during the 1920s to early 1940s facilitated the establishment of cottonwoods and willows on the widening floodplains (Hereford, 1993; Stromberg, 1998; Stromberg et al., 2009). During the 1940s, these trees occurred along the river but apparently usually only on one side at a time because of shifts in river positions.

Most of the present Upper San Pedro River cottonwoods and saltcedars date to years with winter (October-March) floods in the post-1960 era (Stromberg, 1998; Stromberg et al., 2010). After 1960, flood flow patterns were more favorable to riparian tree establishment. Increased fall and winter floods favored the germination and growth of tree seedlings, while decreased summer thunderstorms favored seedlings survivorship. The greatest establishment of current cottonwoods

Percent of cottonwood area (as of 1993) covered by trees that originated within a given decade.



Note that Figure refers to the percents of the areas with cottonwoods in 1993 that are covered by trees that originated within a given decade. It does not refer to the percents of the total number of trees that originated within a given decade.

was during the 1960s. See Noonan (201) for historical photos showing the great increase in trees during historic times.

The alluvial cycles and accompanying massive changes in habitats along southwestern rivers are natural phenomena. Each riparian habitat stage gives way to another habitat stage whereby the waterways continually replenish themselves through changes engendered by the alluvial cycle. Humans viewed the exceptionally large floods that produced the arroyo along the San Pedro River as disasters because of damage to human structures and cultivated areas. However, from an ecological viewpoint, the floods were simply part of a natural process by which habitats have changed over thousands of years.

Conclusion: The trees along the Upper San Pedro River greatly increased in abundance during the last century because of natural processes associated with the alluvial cycle. The river has the natural number of trees for a waterway in the current stage of an alluvial cycle.

2. The Upper San Pedro River once had water flow all year long. Probably true!

Historical records suggest perennial waterflow from the first visits of Hispanic and Anglo-

Americans until the start of the most recent cycle of arroyo downcutting. Mexican prices for land along the Upper San Pedro River were those for land with water, rather than the lower prices charged for land without water. Travelers' accounts also support perennial waterflow (Hereford, 1993; Huckleberry, 1996). The abundance of beaver and the accounts of a trapper (Pattie, 1831) from his trips in the 1820s further support the perennial flow of water. In December 1846, Major Cooke led the Mormon Battalion along the river from approximately Hereford to Benson (Davis, 1982). Cooke described the San Pedro River as a "fine bold stream" with abundant fish. During the 1851 US-Mexico boundary survey, John Russel Bartlett (Bartlett, 1854) recorded continuous stream flow in the Upper San Pedro. In 1854, Lieutenant John G. Parke led a survey party that reached the San Pedro River on February 25 near the site of present-day Benson and reported the river flowing with a rapid current (Davis, 1982). Brady (1898) crossed the Upper San Pedro River at three different places in the early 1850s and reported water was present. Emory (1857) viewed the river at the international border and reported, "Though affording no very great quantity of water, this river is backed up into a series of large pools by beaver-dams, and is full of fishes."

Conclusion: Historical records suggest that water flow in the Upper San Pedro River was formerly perennial.

3. Large fish once were present in the San Pedro River. True!

At first glance, this assertion seems preposterous. The San Pedro River — except for a few relatively small, deep pools — is shallow except during the monsoon season and lacks suitable habitats.

However, habitats along the San Pedro River were quite different before the arroyo cutting described above. The San Pedro's banks had a mosaic of spring-fed wetlands, grasslands, and scattered woodlands of cottonwood, willow, and ash. Fish were abundant and as long as 3 feet. Major Cooke reported abundant fish in December 1846 when he and the Mormon Battalion marched along the river (Davis, 1982). Cooke said that his men caught great numbers of "salmon trout" ranging from 18 inches to 3 feet long. The fish were probably Colorado pikeminnow. These fish (Stefferd et al., 2009) could attain lengths greater than 6 feet, weights over 90 pounds, and formerly occurred in the San Pedro River upstream to about Fairbank. People once commercially sold fish from the San Pedro River in Tombstone (Hereford, 1993). Brady (1898) reported large fish as present at three different places along the Upper San Pedro River in the early 1850s.

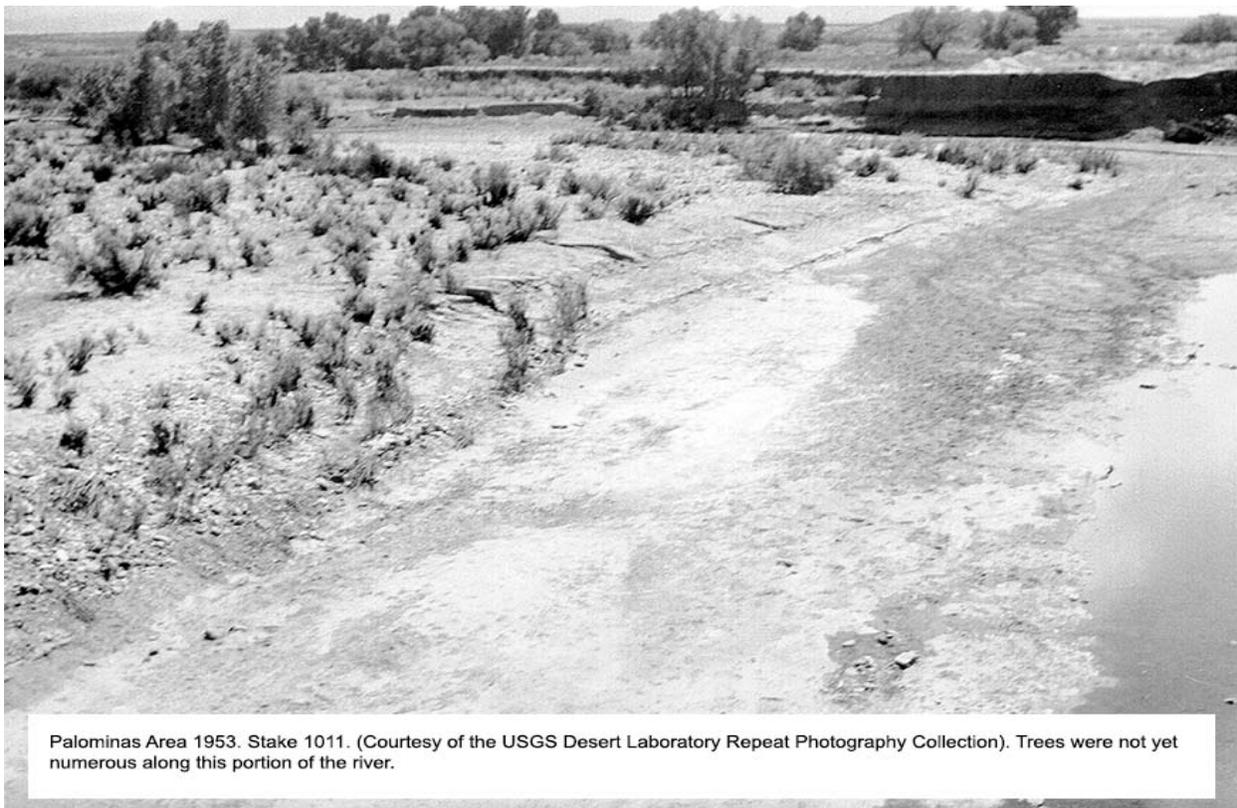
Exceptionally large floods during the late 19th and early 20th centuries resulted in the channel rapidly cutting downward to form discontinuous narrow arroyos (Webb and Leake, 2006). For several decades, the river was mostly a barren channel because of erosion produced by the floods.

A 1904 fish survey by Frederic Morton Chamberlain (Minckley, 2009) showed that large fish were absent by then. This absence probably was due to habitat changes because of the alluvial cycle and harmful practices by humans. Chamberlain concluded that cyanide from ore processing at Charleston probably killed the fish when a mine was abandoned. Another factor contributing to the demise of large fish was that as late as 1885, people harvested them with dynamite (Brown, 2009).

Conclusion: The San Pedro River once had large fish.

4. The removal of beaver caused the formation of arroyos along the San Pedro River. False!

The six episodes of prehistoric arroyo formation strongly argue against the belief that the removal of beavers caused arroyo formation.



Palomitas Area 1953. Stake 1011. (Courtesy of the USGS Desert Laboratory Repeat Photography Collection). Trees were not yet numerous along this portion of the river.



The deposition of sediment in the San Pedro River since the 1940s also argues against them as necessary to prevent downcutting of waterways. Beavers were not reintroduced to the river until 1999-2001, but sediment deposition occurred in their absence. In addition, Turner et al. (2003) reported that in many areas (other than the San Pedro River), beaver populations rebounded by the 1850s, well before arroyo downcutting began.

Conclusion: The scientific evidence does not support a belief that the removal of beaver caused arroyo formation along the San Pedro River.

5. Steamboats or other commercial vessels once used the San Pedro River for commerce. False!

The Arizona Navigable Stream Adjudication Commission extensively investigated whether or not the river was navigable as of February 14, 1912 when Arizona became a state. It examined the results of scientific studies, written documents, newspapers, and other historical accounts, pictures, testimony, and recordings.

Its unanimous finding was that the river was not navigable as of February 14, 1912. The Commission's report (ANSAC, 2006) noted that in 1865, the Arizona Territorial Legislature declared the Colorado River to be "navigable." The legislature expressly held that "the Colorado River is the only navigable water in this Territory" The Commission found no evidence of the San Pedro River having been navigable before the above date.

Historical photos in Noonan (2013) demonstrate that the river was not navigable after statehood. The legend of commercial vessels on the river possibly originated from commercial vessels on the Colorado River.

Conclusion: The belief that commercial vessels once used the San Pedro River is a myth.

6. The species richness of mammals in southeastern Arizona is second in the world only to Costa Rica. A variant of this belief is that species richness of mammals in southeastern Arizona is the second highest in the world. False!

This is an extremely popular belief among people interested in the environment. In fact, this belief appeared in the Sierra Vista Herald/Review on February 3, 2012 (Petersen, 2012).

Since approximately the 1800s, biologists interested in patterns of species richness have agreed that one of the oldest and most fundamental patterns concerning life on Earth is that species richness for most groups of organisms increases from the polar to the equatorial regions (Willig et al., 2003). There is no dispute among biologists that mammals are one of the groups whose maximum species richness is in the tropics. Many biologists have published papers discussing why most groups of organisms have their maximum species richness in the tropics.

Ceballos and Ehrlich (2006) provided a worldwide analysis of species richness patterns of mammals. They reported, "As we expected on the basis of a plethora of studies, species richness of mammals is concentrated in tropical regions throughout the world...." Southeastern Arizona does have a mammal species richness greater than that found in many other areas of Canada and the United States (Badgley and Fox, 2000). Both southeastern Arizona and southwestern New Mexico occur in a region of moderately high mammal species richness that extends northward from Mexico. Regions with much higher mammal species richness occur in Mexico, Central America, South America, and the tropics of the Old World.

Conclusion: The belief that Arizona has the second-highest species richness of mammals in the world is a myth that is totally contradicted by extensive scientific evidence.

Acknowledgments

A. Kunzer kindly read a preliminary draft of this paper and provided useful suggestions. J.C. Stromberg provided data about the decades in which cottonwoods became established along the Upper San Pedro River.

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Events Calendar, March-May 2012

[SPH = San Pedro House; FSH = Fairbank School House; HAS = Huachuca Audubon Society; SABO = Southeastern Arizona Bird Observatory; TBD = To be determined]

SPH Open as Visitor Center (Daily) 9:30 AM-4:30 PM

FSH Open as Visitor Center (Friday-Sunday) 9:30 AM-4:30 PM

Understanding the River Interpretive Walks
Every Saturday at SPH

☛ 9 AM — March 3, 10, 17, 24, 31

☛ 8 AM — April 7, 14, 21, 28

☛ 8 AM — May 5, 12, 19, 26

FSPR Bird Walks

Second Wednesday & Last Saturday at SPH

☛ 8 AM — March 14 (Wed); March 24 (Sat)

☛ 7 AM — April 11 (Wed); April 28 (Sat);
additional Wednesday walks on April 4, 18, and 25 (see article, page 3)

☛ 7 AM — May 9 (Wed); May 26 (Sat)

FSPR/HAS/SABO Bird Walks

Every Sunday at Sierra Vista Environmental Operations Park

☛ 8 AM — March 4, 11, 18, 25

☛ 7 AM — April 1, 8, 15, 22, 29

☛ 7 AM — May 6, 13, 20, 27

Special Events

☛ March 17 (Sat), 9 AM — Presidio Santo Cruz de Terrenate History Walk for Arizona Heritage & Archaeology Month (see article, page 8)

☛ March 24 (Sat), Time & location TBD — San Pedro River Cleanup

☛ April, Date & location TBD — Earth Day Celebrations in Sierra Vista & Bisbee

☛ May 5 (Sat), 9 AM — International Migratory Bird Day/Spring Festival at SPH (see article, page 1)

☛ May 19 (Sat), 8 AM — Fairbank History Walk



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Friends of the San Pedro River is a volunteer, nonprofit, nonpolitical organization providing support to the Bureau of Land Management in its stewardship of the San Pedro Riparian National Conservation Area (SPRNCA).

Friends of the San Pedro River

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