The Arizona Riparian Council Newsletter

Volume 6, Number 3 Autumn 1993

A Riparian Protection Plan for the Springerville Area

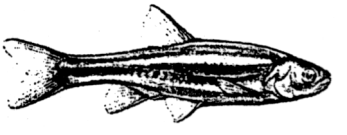
Barbara Tellman, University of Arizona

The Arizona Game and Fish Department (AGF) has embarked on an ambitious program to protect over 20 miles of riparian habitat along the Little Colorado River near Springerville, as well as habitat along upstream tributaries. This is a multi–faceted approach involving land acquisition, water rights and habitat management.

The Wenima Riparian Corridor

This 205 acre property is located north of Springerville (see map on p. 8) and encompasses prime habitat for the Little Colorado Spinedace (*Lepidomeda vittata*), a threatened species. The area includes 35 acres (1.7 miles) of sensitive riparian habitat and 100 acres of adjacent floodplain, as well of uplands. Coyote willow (*Salix exigua*) predominates along much of the creek, but other species are also present. AGF plans to reintroduce other native trees. Beaver, waterfowl, game and non–game animals are present.

This acquisition is AGF's first using Heritage Funds, augmented by some Waterfowl Conservation Fund money, at a cost of $894,500. Under Heritage Fund rules, the land must be operated primarily for needs of sensitive, threatened and endangered (T&E) species. Management will be focused on the spinedace. This does not mean that the needs of other wildlife or recreation will be ignored. Conflicts with other uses of the property will not be permitted if they significantly impact T&E species values. As a starter, the entire riparian corridor is now fenced off from the neighbor's cattle.



Little Colorado River Spinedace

The White Mountain Hereford Ranch (WMHR)

This 1,285 acre property is located on a tributary of the Little Colorado River, southeast of Eager. It encompasses 2.7 miles of Rudd Creek, 32 miles of lake/pond habitat, 40 acres of sensitive wetland riparian habitat and a great deal of upland habitat, 1,540 af of water rights, and grazing rights in the surrounding National Forest. The spinedace is also found here. AGF plans to manage appropriate habitat for the threatened Apache trout (*Oncorhynchus apache*) as well. As of this writing, AGF had not concluded the purchase, but was in the final negotiating stages.

See Spinedace - page 9

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Presidents Message
Translating Riparian Monitoring into Action

Julie Stromberg

As I assume the role of ARC President, I only wish I had more time to spend on so many of the riparian issues and opportunities going on. I would like to thank all the dedicated and concerned people involved in these varied issues who keep the ARC spirit alive.

One issue in need of more attention is riparian monitoring. Monitoring is important for many reasons. First, it is a way of getting to know and appreciate your river or riparian zone, and can be a great learning tool for kids and adults alike. Second, it allows us to track changes in the quality and quantity of riparian zones and then correlate these changes with changing environmental conditions and uses. Third, it helps us understand the natural dynamics and fluctuations inherent in Southwest riparian ecosystems.

Many public and private groups are involved in riparian monitoring. The Friends of the Santa Cruz River is an example of a local volunteer group that has established, in conjunction with state agencies, a program to monitor water quality and aquatic species abundance along the upper Santa Cruz River. Widespread interest in such programs has led to the publication of a newsletter entitled the *Volunteer Monitor* that allows local groups to exchange information and design better monitoring programs. State and federal agencies routinely monitor such physical parameters as water quality, water table levels, and stream flows. Because of limited funding these agencies often have widely spaced monitoring sites. Local groups can augment and expand upon these existing systems. Other agencies have developed specific riparian habitat monitoring programs. Often, this monitoring involves the use of photo points to document vegetation changes, or riparian score cards that provide a means of tracking riparian health over time. Private land management groups, concerned with relatively small pieces of habitat have more intensive monitoring programs, which may involve monitoring physical parameters in the riparian floodplain, and changes in plant species composition and abundance. Many university researchers also have established long–term vegetation study plots on state or federal lands, while some professional societies such as the Xerces Society monitor the abundance of specific groups of animals at various sites.

Legislative actions to be taken in response to the studies generated under the 1992 Arizona Riparian Protection Act can establish or encourage a more comprehensive system of riparian monitoring that can be a tool for detecting and preventing riparian degradation. For example, the riparian vegetation maps generated by AGF through satellite imagery and videography, give us a snapshot of riparian abundance. They can be used as a baseline to monitor future gain or loss of different riparian types. Data generated by theDepartment of Water Resources will provide information on the surface flows and water tables that support different types and abundances of riparian vegetation, and of threshold values which signal impending changes in riparian vegetation quantity or quality. This information can be used to monitor water availability in key sites and ideally, to tell us when restricting our water could prevent riparian degradation. Such a program has been suggested for the groundwater–depressed Owens River Valley area in California. Data generated by Department of Environmental Quality studies on impacts of various land uses on riparian habitat also could be used to develop monitoring programs. With regards to grazing impacts, for example, monitoring programs could prescribe reduced grazing at appropriate times.

These ideas will certainly receive more study over time, but must ultimately be translated into action. Our body of scientific knowledge is ever–increasing. There comes a time, however, when we must take actions based on our present state of knowledge.

"What Lives in the Santa Cruz River?" Workshop for Kids

Sherry Sass, Friends of the Santa Cruz River

Twenty kids (9-12 years old), two teenaged helpers and eight enthusiastic adults enjoyed an action-packed day on the river on August 5, at a workshop sponsored by Friends of the Santa Cruz River (FOSCR). Rancho Santa Cruz, a guest ranch in Tumacacori, graciously donated the use of their lounge and beautiful riparian property for this, FOSCR's first full-blown children's natural history workshop.

The kids has a great time hunting for insects in and out of the water; collecting plants along the Anza Historic Trail; and searching for tracks, and their meanings, along the river's banks. They also became scientist as well as explorers, when they brought their booty back to the "lab" to find out what they'd discovered.

After learning how to make plaster casts of animal tracks, and beginning their own insect and herbarium collections, they played a population-ecology game call "Oh, Deer!" (a "Project Wild" activity) and got a taste of how animal populations interact with their habitat. If all this weren't enough, they also got to observe some local wildlife close up and personal, including a Western box turtle (*Terrapene ornata*), two baby Checkered garter snakes (*Thamnophis marcianus*), numerous toads (in an incredible range of sizes), and a young red-tailed hawk (*Buteo jamaicensis*). (This last one was being transported to a rehabilitation facility by Game and Fish personnel.)

Our hope is that these young people will continue at least some aspect of river exploration, using the start we gave them at the workshop. Even more important is the understanding and appreciation we think they acquired of the richness and diversity of the Santa Cruz River's riparian ecosystem.

Photo: Joel Floyd, FOSCR

This workshop required a tremendous amount of preparation on the part of FOSCR volunteers, as well as the donated time, patience, and expertise of Carl Olsen, UA entomologist, and Ken Stern, from the Arizona Game and Fish Department. but if we have encouraged even a few future river stewards, the effort will have been well worth it.

If you are interested in donating time (expertise is great too, but not necessary) for future workshops like this, please call Sherry Sass (602) 398-9093.

Santa Cruz River Corridor Community Group Meeting

The July 13 Corridor Planning Project meeting focused on issues of landowner liability and all-terrain vehicle (ATV) use of the riverbed. County and state attorneys, a state conservation officer and a National Park Service representative described current laws and enforcement procedures. Apparently, few ATV ordinances exist, and most that do are poorly written. A committee will likely be convened to develop an ordiance for use in Santa Cruz County, to formulate plans for educating the public about rivers in general and private riparian lands in particular (signage, media publicity, etc.). The next meeting to be held in September in Nogales,will address the international issues that so profoundly affect the river. for more information on this and past meetings,contact chairman Roy Ross, Tubac: (602) 398-2506 or Kate Bradley, Tucson: 624-9463.

Verde River Advanced Identification

Marie Sullivan
U.S. Fish & Wildlife Service

On June 30, 1993, the Environmental Protection Agency (EPA) held a public meeting at the Clarkdale Memorial Building to discuss proposed approaches for making the determination of areas suitable or unsuitable for the future discharge of dredged or fill material along the Verde River as part of the Advanced Identification (ADID) process. These determinations will be made based upon the functional assessment completed by the U.S. Fish and Wildlife Service (Service) – *Functions and Values of the Verde River Riparian Ecosystem and an Assessment of Adverse Impacts to these Resources.*

At the public meeting, Karen Reichhardt (Army Corps of Engineers) gave a presentation on the background of the ADID process; Marie Sullivan (Service) discussed the functional assessment; and Mary Butterwick (EPA) presented the proposed options for site identification. Most of the proposed options are based upon the geographic extent to which a function is likely to occur within each reach (i.e., a value of 4 indicates 75–100% of the reach is likely to effectively perform a particular function, 3 indicates 50–74% of reach is providing function, etc.) as discussed in the functional assessment.

The proposed options discussed are:

(1) Additive Functions Approach with a cutoff for suitability based upon the frequency distribution of cumulative scores. Under this approach, the cumulative functional value of the river is represented by the sum of geographic scores of each function within each reach. The cutoff for identifying sites is indicated by obvious breaks in the distribution of scores.

2) Additive Functions Approach based upon an arbitrary cutoff. Each function is rated as high and given a score of 3 if 50% or more of the reach is performing the function; medium with a score of 2 if 25–49% of reach is performing the function; and low with a score of 1 if 1–24% of reach is providing the function. An arbitrary cumulative score is again used as the cutoff point.

3) Weighted Functions Approach – more weight or importance is given to functions that were identified as being important to the public in the Verde River Corridor Project. The same functional rating system as described under (2) above would be applied only to these identified functions. Under this approach, river reaches providing one or more of the weighted functions with a high rating would be designated as generally unsuitable.

4) Suitable Activities Approach – rather than designating particular reaches as suitable or unsuitable,

particular areas would be identified as acceptable locations of suitable activities. Suitable activities may include wetland/riparian enhancement projects, repair of existing bridges, or ditch maintenance. .Another approach which was not specifically discussed, is not allowing any permitted activities along the entire river.

Although the official comment period on the various approaches ended on July 31, 1993, the public will have the opportunity to provide additional input at the next public meeting tentatively scheduled for September 28 or 29 in the Verde Valley. The purpose of this meeting will be to discuss proposed designations along the Verde River. EPA will be sending out a public notice to those currently on the mailing list for the Advanced Identification. If you would like a copy of the minutes from the last public meeting or additional information, contact Mary Butterwick (EPA) at 415/744–1985.

Users Surveyed at Cienega Creek Natural Preserve

Julia Fonseca,
Pima County Flood Control District

Results of a recent survey of visitors provide insight into the frequency and types of uses in a riparian habitat preserve located near Tucson. The survey also provides information about attitudes toward an existing user permit system. The survey was conducted by McGann and Associates in conjunction with preparation of a management plan for Pima County's Cienega Creek Natural Preserve. Arizona Game and Fish Department has provided a Heritage Grant to Pima County to assist in the planning process.

Surveys were mailed to individuals who had acquired permits to enter the Preserve. Of the 117 surveys that were delivered, 64 were completed and returned, for a response rate of 55%.

The vast majority (97%) of the respondents were residents of Pima County who traveled between 10 and 50 miles to visit the Preserve. Most respondents visit the Preserve to hike and observe wildlife, but a significant percentage (42%) come to watch the trains which run parallel to the creek. (See Figure 1.) No one reported using an off-road vehicle, but 19% reported seeing someone else use one.

Cienega Creek Activities*

Hiking	80%
Wildlife Viewing	60%
Birdwatching	47%
Trainwatching	42%
Swimming/wading	31%
Horseback riding	6%
Mountain biking	0%

Other activities not on the survey list, but added by people surveyed included dog walking, raccoon hunting, cleaning up trash, hunting, using metal detector, movie production, painting, and returning lost raccoons.

*Results of the Cienega Creek User Survey

Figure 1.

All visitors to the Preserve are supposed to obtain an access permit from Pima County Parks and Recreation. Thirty persons per day are permitted. Survey respondents were divided on the need for a permit system: approximately 64% thought the permit system was necessary and should be retained, while 23% favored eliminating the permit system. Thirty–six percent of the users felt that the permit system was either inconvenient or very inconvenient.

The survey includes a listing of all comments provided by respondents. To obtain a copy, please contact Julia Fonseca at 740–6350. If you would like to visit the Preserve, call Pima County Parks and Recreation at 740–2690.

The Riparian Council's Fall Outing October 9 and 10, will feature a field trip to this beautiful area, led by Julia Fonseca as well as a campfire talk by Julia about the area and its history. Flyer announcing this event will be mailed soon. If you don't get a flyer, call Cindy Zisner at (602) 965-2490.

New Riparian Education Project

The Riparian Council will join with the Forest Service, Cooperative Extension, the ASU Center for Environmental Studies, the U of A. Water Resources Center and the Association for Learning in and about the Environment in an exciting project to improve understanding of riparian areas. The project will include curriculum materials for schools, workshops for teachers, brochures, a slide show and possibly a video (if Heritage Funds are obtained.)

Ideas and help of all kinds are needed. Any ARC member interested in working on this project should call Cindy Zisner at (602) 965-2490 or Roy Jemison at (602) 556-2182.

Ecosystem Profile:

Julie Stromberg,
Arizona State University

Exotic plant species

Exotic species, also referred to as alien, non–native, or non–indigenous species, are defined as species that have been recently introduced to an area through human activities. Exotic species are common in riparian areas. For example, a recent Master's thesis by Lynn Wolden of ASU (see page 12) reported that 25% of the nearly 350 plant species at the Nature Conservancy's Hassayampa River Preserve near Wickenburg were exotic to the region. This abundance of exotics is a consequence both of the intrinsic successional nature of riparian ecosystems, and of their long history of use by humans. Many exotic species are "weedy" by nature and are thus pre–adapted to riparian zone conditions. Riparian areas are frequently disturbed by floods, and thus support many species, native and exotic alike, that have weedy characteristics. (Weeds are defined in an ecological sense as "early successional species" that readily colonize disturbed areas). It is also a well documented fact that exotic species increase as human presence and activity increase in an area.

Agriculture, grazing, recreation, and urbanization of floodplains all create disturbed areas that are colonized by exotic weeds adapted to each specific type of disturbance. Exotic species also are abundant in riparian zones because the flow of water and animals through the riparian corridor facilitates the spread of species between upstream and downstream reaches.

Who cares if we have exotic plants in our riparian zones? Given our concerns about loss of biodiversity, shouldn't we adopt the view that the more species we have, the better off we are? Also, why do many of us disparagingly refer to a species as an exotic simply because it was dispersed to a site by a human vector rather than by some other "natural" vector? (Aren't humans as "natural" as any other species on this planet?) Answers to these questions are complex and merge the disciplines of ecology and philosophy; I will attempt to restrict my answers to the ecological realm. In answer to the biodiversity issue, the truth is that in many cases exotic species are contributing to the homogenization of the global landscape. Many exotic species pose no ecological "problem." Others, however, invade in such large numbers that they outcompete native plant species and result in loss of local or regional diversity. Without the native plant species to provide "food chain support," many native animals species also decline. Exotic species also can alter the way ecosystems function. For example, the spread of the exotic saltcedar (*Tamarix chinensis*), a native of Eurasia) in the US Southwest is increasing the prevalence of fire in the riparian landscape. A recent journal article by Busch and Smith,

Sorghum halapense

for example, describes how fire frequency along the Colorado River has increased several–fold as a result of the replacement of Fremont cottonwood (*Populus fremontii)* and Goodding willow(*Salix gooddingii)* by the highly flammable saltcedar. Saltcedar recovers readily after fire, while Fremont cottonwood trees do not. Saltcedar further excludes salt–intolerant native species from the riparian community by pumping salt from deep soil horizons and depositing it on the soil surface. Dense saltcedar thickets also modify the flow of floodwaters, and cause greater lateral flow of the water into adjoining farmfields.

Exotics are here to stay. Those that have become prevalent and widespread are referred to as "naturalized exotics." Many attempts are being made to reduce the abundance of exotics in riparian areas. Saltcedar control programs, for example, work well in areas in which saltcedar is still a minor component of the riparian community. Volunteer work crews can remove mature trees by hand cutting and spot–herbiciding. More drastic measures including bulldozing, however, are called for

in areas in which saltcedar is the dominant species. Reduction of exotics has greatest success in cases where we understand the life history and ecological dynamics of the species in question. For many exotic herbaceous species, however, we know little about such issues as rate and causes of invasion rate or about which pathogens and insects keep the species in check in it's native homeland. For example, in our hot desert riparian zones, there are many "problem" exotics about which we know very little. Some of these include white and yellow sweet clover (*Melilotus* spp.), rabbit's foot grass (*Polypogon* spp.), and bermuda grass (*Cynodon dactylon*), which can outcompete native riparian species including rushes (*Juncus* spp.), spike rushes (*Eleocharis* spp.), and knot grass (*Paspalum distichum*) in wetlands and along wet stream edges. On the higher floodplain terraces under mesquite (*Prosopis spp.)* and mature cottonwood forests, "problem" exotics include brome grasses (*Bromus* spp.), foxtail grass (*Hordeum* spp.), tumble mustard (*Sisymbrium irio*), and other annual grasses and forbs.

Melilotus indica

Before we attempt to eliminate exotic species, we should make sure that native species are available to fill any ecological niche that the exotic may be providing. The Arizona Nature Conservancy, for example, is attempting to eliminate Johnson grass (*Sorghum halepense),* a widespread exotic, from abandoned agricultural fields on the Sonoita Creek floodplains. This removal is a first step in a riparian restoration plan that has the ultimate goal of restoring native riparian sacaton grass (*Sporobolus sp.)* to the abandoned fields. Johnson grass , like many exotic weeds, is a relative of our food crops and often grows on or near agricultural fields. It is less productive for wildlife than is sacaton grass, in part because it tends to dominate sites and exclude the diversity of species associated with native riparian grasslands.

Reduction of exotics often is an indirect consequence of management for ecological "health." When we protect riparian habitat by restoring appropriate physical conditions or by eliminating forces that degrade riparian habitat, we often shift the environmental conditions such that they again favor native species. Exotics sometimes grow in apparently pristine systems, but as a rule only become dominant in areas where we have altered the physical environment. To control exotics, then, a first step is to restore natural processes and conditions to our riparian ecosystems. For example, saltcedar and many other exotics often have greatest

Sisymbrium irio

abundance along reservoirs and dammed river reaches because the controlled flows and altered flow regimes favor a new assemblage of species. If we allow the river reaches to flow freely, the ecological balance should shift towards native species that are better adapted to withstand the physical impacts of flooding and that have seed dispersal and seedling establishment strategies adapted to the regional pattern of flood flow and base flow schedules. Similarly, as we reduce grazing pressure to "natural" levels and patterns, native species adapted to the lower grazing levels should eventually recolonize the sites and replace the exotics. Restoration programs can hasten this natural recovery.

Because exotic species often are symptoms of altered site conditions, the relative abundance of natives to exotics can be used as an indicator of ecological health. We should be concerned with exotic species for this reason alone, and should set in place monitoring programs to track the spread or decline of riparian exotics.

Spinedace - from page 1

This property, too, would be managed for T&E values as well as for other wildlife. More than 800 elk use the area in the winter. Because of the size of the ranch and availability of large buildings, the area can also be used for environmental education and recreation. The reservoir will probably be used for fishing, with emphasis on the Apache trout. How the grazing leases are handled depends on cooperative agreements and possible changes in federal grazing rules.

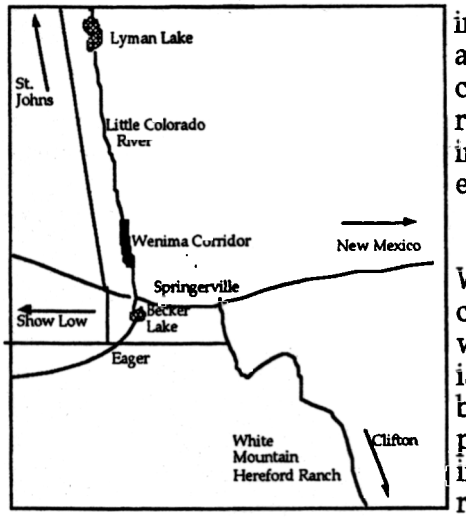
Water Rights Issues

In order to assure adequate water in Becker and Lyman lakes, AGF had been looking to assure long-term water availability. In acquiring the Wenima property, AGF acquired two senior grandfathered water rights (1881 priority date) to the river as well as a water contract for Becker Lake. The Wenima purchase will protect the entire riparian corridor–lake system by allowing AGF to manage for an assured instream flow.

The WMHR purchase includes grandfathered water rights on several tributaries and 1,540 af of water storage rights in six man-made ponds, rich in waterfowl. AGF is evaluating filing for instream flow permits

The Process

AGF is highly sensitive to the desires of surrounding landowners and acquired



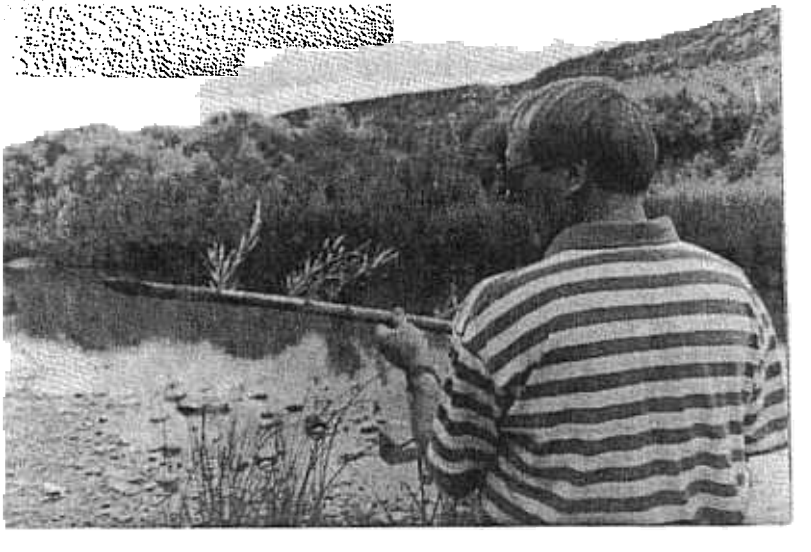
the Wenima property after having been offered it by the landowner and conducting extensive public participation activities. A survey of southern Apache County residents revealed that of those with an opinion, 74% supported the purchase.

In response to criticism that transferring land ownership from private to public, will negatively affect the local tax base, AGF responds that the annual tax on the entire 205 acre Wenima property (taxed as grazing land) was approximately $30. This will be more than offset by tourism income to the area. An analysis of the WMHR indicates that purchase could result in as much as $46,000 in annual taxes to the local economy.

It is noteworthy that the Wenima land was purchased from a developer who had designed the riparian corridor as a golf course, but offered the riparian portion of the land to AGF in the belief that a wildlife refuge would increase his land values as much or more than a golf course would have at much less cost. The development would be on the uplands to the east. Could this be the start of a trend?

The Big Picture

The riparian corridor between Becker Lake and Wenima is in an incised canyon, unsuitable for water–consumptive uses. Thus, the Wenima purchase should protect water rights for the entire corridor. This area contains significant archaeological sites. AGF

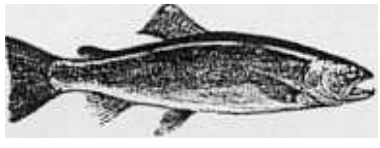


Bob Vahle, AGF Biologist, examines a beaver-chewed stick which has begun to regenerate both roots and leaves. Photo: B. Tellman

may establish a hiking trail from Becker Lake to Lyman Lake, with archaeological and environmental educational information along the way.

On an even larger scale, AGF believes that by strategically placed land acquisition along riparian corridors, water rights and riparian corridors will be protected for habitat both for T&E species and for many other kinds of wildlife – both game and nongame species, while enhancing recreational and environmental education opportunities. AGF has been offered certain other properties in the Little Colorado River drainage which could in future years become part of the overall riparian protection picture on the Little Colorado River.

Thanks to Norris Dodd and his staff from the Region I Game and Fish Office for the above information.



Apache trout

River Seed Grants
Recreational Equipment, Inc. has directed a grant to the National Rivers Coalition to distribute as seed grants to citizen organizations for river policy work. Grants range from $200 - $1000 for such activities as passage of legislation. For more information, contact Suzi Wilkins at American Rivers, (202) 547-6900.

Ownership of Arizona Streambeds

Kris Randall
Arizona Department of Environmental Quality

According to recent legislation, the State may own much of the streambed land in Arizona. Under the "Equal Footing Doctrine," states receive ownership, upon statehood, of the beds of all rivers that were navigable on the date of statehood. Historically, Arizona has not acted on this claim of ownership, and titles to streambeds have been held by a wide variety of public and private parties. A recent lawsuit and ensuing legislation, however, directs the State to determine which river reaches were navigable at statehood and what their boundaries were. The Arizona State Land Department was directed to collect information from which a Governor– appointed board, the Arizona Navigable Stream Adjudication Commission (ANSAC), could render decisions of navigability or non–navigability for individual stream reaches. If a decision of navigability is reached, title to the riverbed may be transferred to the State, regardless of current title ownership.

"Navigability" is defined as "used, or susceptible to being used, in its original or natural condition, as a highway for commerce, over which trade or travel could have been conducted in the customary modes...on water." This definition has been interpreted rather broadly by the courts, including such activities as floating logs downstream as evidence of navigability. ANSAC's decisions of navigability are likely to have profound implications on nearly every activity in or along navigable rivers in Arizona, including floodplain management, flood control, construction of roads and bridges, use of riverbed and riparian areas, access to rivers, and leasing of streambed areas for activities such as sand and gravel mining or grazing.

The first studies are underway for the Salt, Verde, San Pedro, and Hassayampa Rivers. Analysis of other rivers will begin in the fall. The types of information required to support decisions of navigability include documentation of historical river uses, photographs of historical stream conditions, hydrologic/hydraulic reports describing normal or flood flow conditions, maps of channel boundaries, or accounts of present or past river and riparian conditions. If you know of information that should be considered for these four rivers, or if want to know more about stream navigability studies, please contact Jon Fuller/CH2M HILL at (602) 966–8577 x220.

For a thorough discussion of the "Public Trust Doctrine" which was the basis of the lawsuit , see the summer 1993 issue of River Network's newsletter, *River Voices*. For a copy, call 1-800-423-6747.

Grazing Policy Meeting Hosted by Secretary of the Interior Bruce Babbitt
Cindy D. Zisner, ARC Secretary

Even though this July 9th Grazing Policy Meeting was hastily arranged and not very well publicized, there were nearly 400 people in attendance at Northern Arizona University's Cline Library Assembly Hall. They were there to listen and to express their feelings about grazing issues in Arizona and the West. Most attendees were ranchers and their families. Scattered among them were local state and federal agency personnel and representatives of such groups as the Audubon Society, Nature Conservancy, Sierra Club, Gila Watch, Earth First, etc.

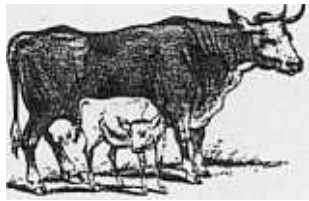
Members of the hearing panel were Secretary of the Interior Bruce Babbitt, Assistant Secretary of Land and Mineral Management Bob Armstrong, Director of the Bureau of Land Management (BLM) Jim Baca, Chief of the U.S. Forest Service (USFS) Dale Robertson, and U.S. Representative Karen English. Invited speakers were Charles Wilkinson (University of Colorado), Robert Ohmart (Arizona State University), Wayne Elmore (BLM, Oregon/ Washington), Alan Kessler (Arizona Rancher), and Dan Daggett (Member, Participatory Range Management Team)

Secretary Babbitt opened the meeting. He explained that grazing has occurred for many years on public lands and, although the press has made grazing fees a major issue, he believes there are other equally important issues regarding grazing on public lands. From past hearings throughout the West he had pretty much heard all he wants to hear about the fee issue. In each of the previous meetings riparian management seemed to come up as an issue. Secretary Babbitt stated that the BLM and USFS were behind in proper management of the lands under their control. The agenda for the meeting was to discuss these riparian issues to help the Department of the Interior come up with some reasonable solutions and compromises. He introduced each speaker, briefly emphasizing that each of the academic professionals were not ranchers but had studied riparian areas and issues for a number of years.

Dr. Charles Wilkinson presented a historical account of grazing laws. He noted that in 1886 Theodore Roosevelt said that there were too many cattle on the range. Many cattle died the winter of that year and much of the damage to riparian habitat which occurred then still lingers today. In 1906 Pinchot created the first grazing regulation at a cost of $0.05/AUM. (Today, 87 years later it is only $1.86/ AUM.) He stated that range condition is the most important issue and that range must be managed for sustainability.

Dr. Robert Ohmart showed slides of degraded riparian habitats in New Mexico on the AldoLeopold Wilderness Area, in southeastern Utah on land managed by BLM; and here in Arizona. He also showed slides of some areas that were healing, i.e., the San Pedro National Riparian Conservation Area. He was straightforward what needed to be done to preserve the habitats. Grazing in the nongrowing season gives the habitat more of a chance to heal. The land needs to be given total rest from grazing for a number of years to give it a chance to recover. Needless to say this upset much of the rancher audience. They were listening, but they were not hearing. All they heard was "remove the cattle." Basically, Ohmart said the land will heal itself if you just give it a chance and manage it properly.

Governor Symington spoke briefly about how the government should leave the ranchers alone. The Governor said, "The truth is that grazing and riparian protection can be compatible. Changes are being considered that would put a noose around the neck of the livestock industry." He went on to say that the state was charging 21% less than federal fees and still making a



profit. He proposed to Secretary Babbitt: "We'll manage the Bureau of Land Management and the Forest Service lands for the next five years and see how we do." The ranchers were very pleased with what the Governor said.

Wayne Elmore showed how, with proper management, areas could be grazed and be healthy. However, most of his slides showed healthy grass growth, but not many showed tree growth. He said that managers need to take into account all characteristics of a stream before finalizing a grazing schedule to manage each stream for a healthy system. Each stream is different in gradient, substrate, existing vegetation, etc., and should be managed accordingly. He showed that early spring grazing could occur without harming a system, but he cautioned that optimum grazing seasons vary with location.

Alan Kessler, an Arizona rancher, also showed some slides of areas around his ranch that he felt were healing.Unfortunately, he had no "before" slides with which to compare. Mr. Kessler says we don't need to remove cattle to improve riparian areas. He also fears that the riparian issue is just being invoked as an excuse to remove everyone from public lands.

Senator DeConcini spoke briefly about being committed to working for a balance in the grazing issue. He also pointed out that most of Arizona's ranchers are small family operations and not large corporations.

Dan Daggett talked about how he and other environmentalists have found a way to sit down and discuss issues with ranchers by having meetings with both sides in various areas of the state. Letting everyone meet on their own "turf" allows people to come to solutions and compromises on various issues.

Most of the public's comments were about grazing fees, removing all cattle, and saving family values and traditions. There were a few who commented on the meeting's purpose – reaching a resolution beneficial to all.

Secretary Babbitt said there would be a joint USFS/BLM grazing fee proposal out before the end of the summer, accompanied by a restructuring of BLM standards and guidelines. In early fall 1993 more hearings will be held about these fees, standards, and guidelines.

Flowing Streams Dealt Major Blow

In an important Arizona Supreme Court decision this summer, groundwater not immediately under a stream or its banks is basically fair game for groundwater pumpers, no matter whether it is hydraulically related to a stream or not. In ruling on the "Interlocutory Appeal" (see Andy Laurenzi's background article in the winter issue) in the Gila River adjudication, the court vacated a 1988 ruling establishing the "Bright Line" rule, returning the *status quo* to that which prevailed after the *Southwest Cotton* decision more than 60 years ago.

Attorneys, John Leshy and Dale Pontius had argued for The Nature Conservancy that the Bright Line rule was too narrow and that modern scientific knowledge should be applied to determine propriety of pumping. In its opinion, the Court agreed that Arizona's legal concepts were based on outmoded science and had not kept pace with other Western states. The Court, however, felt that changing this was a matter for the Legislature. The decision states: "We recognize compelling arguments in favor of unified management of Arizona's water resources. Nonetheless, in the decades since Southwest Cotton was decided, the Arizona Legislature has not significantly altered the opinion's reach." It also states: "Thus, even though Southwest Cotton may be based on an understanding of hydrology less precise than current theories, it would be inappropriate to undo that which has been done in the past."

The Court strongly suggested that the Legislature remedy this outmoded law, which leaves flowing streams in a precarious position. Now is the time for change, with the RAAC (See page 2) due to make recommendations for stream protection by Dec. 1994.

Master's Theses Abstracts

Hassayampa River Preserve, Wickenburg, Arizona: Flora,Vegetation, and Riparian Herbaceous Understory Restoration
Lynn Glick Wolden, ASU

Floristic and vegetational analyses of the Hassayampa River Preserve were completed over a collection/observation period of 3.5 years. The flora comprised 344 taxa of vascular plants, (340 species, 229 genera, and 64 families). Of the taxa, 26% was considered exotic, or introduced to the region, 16% obligate or facultative wetland, and 43% desert floras or observed in desert habitat. Gramineae and Compositae comprised the largest percent of the flora. Rich floral diversity was explained by an abundance of temporal and spatial niches, and by the disturbance regime and propagule influx characteristic of riparian areas. Results were used to select native species for the riparian herbaceous understory restoration experiment at the Preserve.

The results of this experiment indicated that the first priority in restoration planning is to develop an understanding of the ecosystem's seasonal and yearly variations; patterns revealed in these cycles will assist in the development of a restoration plan. The results also concluded that the most effective of the tested approaches for herbaceous restoration of low–elevation Southwestern riparian areas is to remove the unnatural disturbances, restore the natural physical processes, supply native propagules, and then "let it be." Planting native species resulted in a significantly higher cover of these species in all three association types , even though the success of native species reintroduction was considered short–term. The initial success may have been due partially to the above average rainfall the first summer and the relatively heavy weights of seeds of successful species. Success was short–term, however, attributed partially to competition from prominent exotic species and extremes in precipitation. Removal of exotic species and application of mulch generally did not increase the cover or survival of reintroduced native species. Hoeing to remove the exotic species resulted in a higher cover of exotic forbs and a few native species, and a lower cover of exotic grasses, but the effect lasted only a short time. Mulching had mixed effects, with most exotic and weedy native species having the highest cover in treatments containing mulch.

Natural Areas Inventory and a Plan for Ecological Corridors: Mohave County, Arizona
Jeanne Marie Trupiano, ASU

Increasing pressure from development of property in Mohave County, habitat fragmentation and isolation of natural areas threatens critical ecosystems. The objectives of this study required the identification of fragmented habitat and assessment of impacts to species biodiversity.

Seventeen federally designated wilderness areas and a state natural area were selected for inventory. An assessment was conducted to obtain both site-specific data and information on regional conditions impacting each natural area. Maps provided at a scale of 1:63,000. County maps were created at a scale of 1:1,000,000 showing spatial arrangement and landscape relationships and patterns. Overlay maps illustrating constraints imposed by major highways, utility corridors, and watershed conditions were also included.

These data provided a multi–factor, multi–level approach that led to a classification of natural area types and level of threat for each area. Natural areas were analyzed in terms of their structure and function within the surrounding landscape. The results of the analysis formed the basis for the final corridor plan. This plan includes corridor criteria useful in desert environments, for isolated sites, for clustered sites, and for those sites located near areas of urban encroachment.

Recommendations for implementation of actions to enable protective strategies for the natural areas analysed are made. Planning, and interagency cooperation is advised. The use of non–governmental entitles such as public land trusts is advised to aid with protective actions taken on behalf of the existing natural areas. Specific recommendations were offered for Mohave County.

Conferences and Meetings

Society for Conservation Biology
Julie Stromberg

The Society for Conservation Biology held its seventh annual meeting on June 9–13, 1993 at Arizona State University, Tempe. The conference was global in scope, but also had a strong focus on regional issues, including those associated with Southwest rivers, riparian habitat, and fish species. As we all know, the factors that have caused the regional decline of fish species overlap to a large extent with those that have reduced the abundance of riparian habitat. One of these factors is reduction in water availability. Along these lines, Dr. Paul Marsh of ASU discussed the impact of development of regional water resources on population declines of razorback sucker in the Colorado River Basin.

Dr. Contreras–Balderas of Universidad Autonoma de Nueva Leon described the recent drying of nearly 100 springs and the lowering of water tables in Sonora, caused by water use from growing human populations. He called for appropriate basin and watershed management in Mexico and US–Mexico twin cities, including increased water recycling, re–use and efficiency, to decrease the high rate of fish extinction and riparian habitat loss in arid and semiarid portions of Mexico. Robert Webb of the USGS discussed how dams have reduced habitat quality in and along on our Southwest rivers, in part by reducing the amount of fine sediment particles in the river and in the floodplain.

Water quality issues also were a topic of concern. Dr. Terry Boyle and Nancy Hoefs of the National Park Service and Colorado State University stressed the legal importance of maintaining streams in protected areas, such as those designated as Outstanding Natural Resource Waters. Water quality and other physical and biological data obtained from these areas can be of use in determining baseline water quality values for pristine conditions. This data can be useful in setting legal standards for water quality under the Clean Water Act or state laws.

Another issue addressed was the need to protect riparian ecosystems at the watershed level. Audrey Pearson of the University of Washington (UW) explicitly identified watersheds as functional conservation units, since they often contain a complete range of the environmental gradients that structure ecological communities. Joshua Greenberg and Jerry Franklin, also of UW, described how GIS can be a useful tool to select watershed reserve areas and protect riparian zones; and described how riparian areas should be preserved to create 'connectivity' between upland reserve areas.

Many thanks to Dr. W.L. Minckley and others at ASU for organizing this successful conference. Copies of the abstracts are available for $10 from Cindy Zisner (602) 965-2490.

The Pygmy Owl and Willow Flycatcher Need Your Support

The U.S. Fish and Wildlife Service (USFWS) has announced the proposed listing of the Southwest Willow Flycatcher (*Empidonax traillii extimus)* as an endangered species. A maximum of 500 pairs are estimated to remain in parts of Arizona, California and New Mexico and their numbers are dwindling. Streamside habitats for this bird include portions of the San Pedro River, the Verde River and the Colorado River. Threats come from expansion of humans into riparian areas and overgrazing.

The Cactus Ferruginous Pygmy Owl (*Glaucidium brasilianum*) is also a step closer to listing with a finding that a petition to list contained enough information to proceed. This owl depends on riparian forest ecosystems and threats come from livestock overgrazing and water developments. USFWS has one year to make a determination.

Both actions were initiated by the Greater Gila Biodiversity Project, based in Luna NM. Strong opposition to the listing is expected from the ranching industry and developers whose activities in suitable riparian habitat may be affected. To support these proposed listings, write USFWS, 3616 W Thomas Rd. #6, Phoenix AZ 85019.

Noteworthy Publications

Pat Ellsworth, Section Editor

Books

Crowfoot, J.E. and J.M. Wondolleck. 1990. Environmental Disputes: Community Involvement in Conflict Resolution. Island Press. 275 pp.

The authors explain Environmental Dispute Settlement, a set of procedures for settling disputes without litigation.

Echeverria, J.D. and M.H. Huntington. 1991. American Rivers Outstanding Rivers List. American Rivers. 303 pp.

Now in its second edition, this book is a compilation of rivers in the U.S. that have outstanding ecological, recreational, natural, cultural or scenic value.

World Wildlife Fund. Statewide Wetlands Strategies. 1992. 267 pp.

This guidebook offers ways to protect wetlands based on recommendations of the National Wetlands Policy Forum.

Minckley, W.L. and J.E. Deacon. (eds.) Battle Against Extinction: Native Fish Management in the American West. University of Arizona Press. 535 pp.

Nearly one third of the native fish species of North America are found in the arid West. Many of these species are declining as a result of human activities. In the most comprehensive volume yet produced, the contributors give a species by species evaluation of status and potential for `recovery.

Naimann, R.J. (ed.) 1992. Watershed management: Balancing Sustainability and Environmental Change. Springer-Verlag. 554 pp.

Analyzing watershed in the Pacific Northwest, this book combines social, economic, and environmental concerns and treats forest, range, agricultural and urban parcels in an integrated manner.

B. Tellman, et al., eds. Proceedings. Riparian Management Strategies: Common Threads and Shared Interests. GTR-RM-226. USDA Forest Service. Fort Collins CO. 1993. 425 pp.

This volume includes presentations made at last February's conference in Albuquerque. Free copies available from the UA Water Center at (602) 792-9591 or from the Forest Service.

Papers

Naimann, R.J., H. DeCamps, and M. Pollock. 1993. The role of riparian corridors in maintaining regional biodiversity. Ecological Applications 3:209-212.

Stromberg, J.C., S.D. Wilkins, and J.A. Tress. 1993. Vegetation-hydrology models: implications for management of *Prosopis velutina* (velvet mesquite) riparian ecosystems Ecological Application 3:307-314.

Tiner, R.W. 1993. The primary indicators method - a practical approach to wetland recognition and delineation in the U.S. Wetlands 13:50-63.

Directories

S. Eden, Lahr, N. and Tellman, B. Whereto Find Water Expertise at Universities in Arizona. Water Resources Research Center. University of Arizona. Tucson. 1993.

This is a directory of water-related experts at ASU, NAU and UA. Call (602) 792-9591 for a free copy.

Environmental Data Research Institute. 1992. Environmental Grantmaking Foundations: 1992 Directory. 490 pp. (Available from Island Press.)

This is a directory designed for grant makers and grant seekers. It analyzes a broad cross section of foundations that give environmental grants.

Correction from the Winter Issue: Clifford's article was in the *Journal of Freshwater Ecology*.

The Arizona Riparian Council (ARC) was formed in 1986 as a result of increasing concern over the alarming rate of loss of the State's riparian ecosystems. It is estimated that less than 10% of the State's original riparian acreage remains in a natural form. These habitats are considered Arizona's most rare natural communities.

The purpose of ARC is to provide for the exchange of information on the status, protection, and management of riparian systems in Arizona. The term "riparian" includes vegetation, habitats, or ecosystems that are associated with bodies of water or are dependent on the existence of perennial intermittent or ephemeral surface or subsurface water drainage. Any person or organization interested in the management, protection, or scientific study of riparian systems, or some related phase of riparian conservation is eligible for membership. Annual dues are $10.00; additional contributions are gratefully accepted.

This newsletter is published three times a year to communicate current events, issues, problems, and progress involving Arizona's riparian systems, to inform you, the members of ARC about Council business, and to provide a forum for you to express your views or news about riparian topics. The winter issue will be mailed in January, with the deadline for submittal, December 1, 1993. Please call or write me with suggestions and offers of articles and/or illustrations. This publication will be as interesting and useful as the members make it.

Barbara Tellman, Editor
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For more information about the Arizona Riparian Council and a brochure with membership form,

contact
Cindy Zisner
Center for Environmental Studies
Arizona State University
Tempe AZ 85287-3211
(602) 965-2490.

Annual dues are $10.

Calendar

Sept 9-11 Western Wetland and Riparian Areas: Public/Private Efforts in Recovery, Management and Education. Snowbird UT. Thorne Ecological Institute. 303 499-3647.

Sept. 23-24. Rangeland Ecology Institute. Sonoita AZ. Sponsored by BLM, Tucson Audubon Society and the University of Arizona. 1-800-8632 or 624-8632 in Tucson.

Sept. 23-24 Emerging Critical Issues in Water Resources of Arizona and the Southwest. Casa Grande AZ. Arizona Hydrological Society. Contact: Peter Livingston, CH2M Hill, 5210 E. Williams Circle #500, Tucson AZ 85711.

Oct. 9-10 Arizona Riparian Council Fall Outing. Empire-Cienega Ranch. Mailing sent to all members. Contact: Cindy Zisner (602) 965-2940.

Oct. 15-17 The Bioneers: Practical Solutions for Restoring the Environment. San Francisco CA. Seeds of Change Conference, 360 Montezuma #334, Santa Fe NM 87501.

Nov. 4-7 The Future of America's Rivers: A Celebration of the 25th Anniversary of the National Wild and Scenic Rivers Act. Arlington VA. Contact Suzi Wilkins, American Rivers. (202) 547-6900.

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