The Arizona Riparian Council Newsletter

A Quarterly Publication of ARC

Volume 3, Number 2 *Summer 1990*

Tavasci Marsh Now Under Protective Agreement

At a recent public meeting the Arizona Game and Fish Commission signed a joint agreement with the Phelps Dodge Corporation that places Tavasci Marsh and the Packard Ranch under cooperative management.

Tavasci Marsh is a lush riparian area that is located just north and east of, and contiguous with, the Tuzigoot National Monument in the Verde Valley. This one-time oxbow of the Verde River, now isolated from the river itself, gets its remaining water from a natural spring. The 364-acre area is included in a list of the 20 most important and threatened wetlands in Arizona, one of the last marshlands remaining in central Arizona. Even in its current poor condition, the area is home to a diversity of wildlife. Over 110 species of birds have been listed as occurring there, including both the Virginia and Sora rails, species whose relative abundance is closely tied to the availability of suitable wetland habitat.

With careful restoration this area will support a rich variety of natural plant, bird, and animal species. Under the new agreement the Arizona Game and Fish Department (AGF) will restore the upper part of Tavasci Marsh to marshlands as quickly as possible. By flooding the upper part of the area, grazing of livestock by current lessees will necessarily be restricted to the lower portions of the property. The plan is to eventually phase out all grazing.

The Packard Ranch is located at the confluence of Sycamore Creek and the Verde River, is surrounded by land administered by the Coconino and Prescott National Forests, and is situated at the south entrance to the Sycamore Canyon National Wilderness. The ranch has significant areas of riparian vegetation and the aquatic habitat is home to one of Arizona's threatened native fishes, the spikedace *(Meda fulgida)*.

The grazing of livestock there will not be eliminated but will probably be done under a plan of rest and rotation, the details of which will be worked out with the current lessee. The grazing plans will be consistent with new grazing guidelines being prepared by the Forest Service for nearby areas along Sycamore Creek and the Verde River.

AGF, under the new agreement will retain management control over both the Tavasci Marsh and the Packard Ranch until such time as the Phelps Dodge Corporation elects to sell or exchange these properties to a state or federal land management agency. PD has been discussing with the U.S. Forest Service and the National Park Service the eventual exchange into public ownership of both the Tavasci Marsh and the Packard property.

Ed.

President's Column

Residents of eastern Pima County take a certain amount of pride in the greater environmental awareness exhibited in the Tucson Basin when compared to other areas of the State. The all Democrat City Council and Mayor's Office are committed to environmental protection and would like to be perceived as making decisions which are environmentally sound. This is one reason why Tucson Water's overpumping of groundwater in the Tanque Verde sub-basin (see story on page 6) is an especially egregious act.

Within the last several years, a number of statewide and local policies have been adopted, or have been recommended for adoption, which are designed specifically to protect Arizona's riparian environments. The Governor's Executive Order certainly tops the list.

Within Pima County there are also progressive floodplain management policies, a substantive riparian land acquisition program, and open space and wildlife habitat studies commissioned by local government which identify Tanque Verde Wash as a significant resource. Yet, despite the increased awareness and efforts to preserve riparian resources in the Tucson Basin, Tucson Water persists in its efforts to suck the very life out of the Tanque Verde sub-basin aquifer, and in the process, is irreparably damaging one of the few remaining high quality

—*See* **ANDY,** *page 6*

Executive Order No. 90-10

Governor's Task Force on Environmental Impact Assessments

The Governor and the Legislature appear to have taken a prudent approach to some recent environmental legislation. Senate Bill 1327 "Environmental Impact Reports" had already passed the Health and Welfare Committee and was on its way to the Appropriations Committee, where it apparently died. The bill died mainly because because both legislators and agency representatives feared that costs and manpower requirements needed to meet the provisions of the bill would be prohibitive. However, in order to keep the concept of providing appropriate review of State development projects alive, the Governor was urged to create through executive order a task force of private and public agency representatives to develop a well thought out approach to new legislation. The order creating that task force is reprinted here in its entirety.

WHEREAS, the protection of the environment is of vital importance to the State of Arizona; and

WHEREAS, the State of Arizona and its political subdivisions must regulate and serve as models in the effort to protect the human environment and the natural resources of the State; and

WHEREAS, the design and location of projects initiated, funded, or authorized by the State, its departments and agencies, counties, cities, towns, and other appropriate political subdivisions may have substantial direct, indirect, and cumulative effects on the environment; and

WHEREAS, the protection of the environment, the management of development, and the prudent use of the State's land, water, and other resources will be fostered by the proper location and design of projects initiated, funded, or authorized by the State, its departments and agencies, counties, cities, towns, and other appropriate subdivisions; and

WHEREAS, the potentially adverse environmental impacts of projects initiated, funded, or authorized by the State, its departments and agencies, counties, cities, towns, and other appropriate subdivisions can be reduced or eliminated if such impacts are assessed before the approval of such project and reasonable and prudent mitigation methods are developed to minimize adverse impacts;

Now, Therefore, I, Rose Mofford, Governor of the State of Arizona, by virtue of the authority vested in me by the Constitution and the laws of this State, do hereby create the Governor's Task Force on Environmental Impact Assessments, and order and direct that:

1. The Task Force shall:

Compare various policies and procedures used by the Federal government and states which require environmental impact assessments.

Estimate the potential costs involved in preparing environmental impact assessments, and evaluate options for assessing financial responsibility for preparing such statements.

Recommend activities which should require environmental impact assessments, and identify any possible exemptions.

Identity the criteria for environmental impact assessments, and determine the time necessary for submittal and review.

Develop recommendations for the implementation of an environmental impact review and approval process.

Consider such other related issues as the Governor may direct.

2. Members of the Task Force shall be appointed by and serve at the pleasure of the Governor, and shall serve without compensation.

3. The Governor shall designate a Chairperson from the membership.

4. The Task Force shall meet at the call of the Chairperson.

5. The Department of Environmental Quality shall provide staff support.

6. The Task Force shall issue its final report by December 1, 1990.

Pintail Lake and other northern Arizona effluent lakes are producing waterfowl rather than problems

Producing Wildlife With Treated Effluent

Editor's Note: The following article was excerpted from one written by Fred Smith of the Arizona Republic, April 23, 1990. Additional information was supplied by Larry Riley, Marc Dahlberg, and Sam Lowry of the Arizona Game and Fish Department, and Gary Myers of the Apache-Sitgreaves National Forest.

Pintail Lake, just a few miles north of the city of Show Low, looks for all intensive purposes, like any other shallow lake. It is lined with a typical mix of aquatic vegetation such as bulrushes and cattails. A variety of shorebirds and waterfowl are seen feeding in and out of the emergent vegetation along the shore and among the little nesting islands created to protect nesting waterfowl from predation. At times, in fact, the production of waterfowl per acre has been as high as any refuge in North America.

The enormous productivity of this little 47 acre lake comes ultimately from the sewers of the city of Show Low. Since about 1979, this city has have been pumping over 200,000 gallons of treated effluent per day into Pintail Lake. Prior to this, effluent from the city's waste-treatment plant was dumped into Show Low Creek, a tributary of the Salt River. The waste water now goes first to a giant tub where the solids, or sludge settles to the bottom. The water on top is filtered twice through an aeration process where aerobic bacteria begin the process of breaking down the organic matter. After this, the water is sent underground to Pintail Lake and to another area called Redhead Marsh.

The nutrient rich water has, of course, created a lush vegetation not only in the lakes, but also along the banks of the canals through which the water is transported. This vegetation provides the secondary cleansing of the effluent water. Both anaerobic and aerobic bacteria break down much of the solid organic matter, producing primary nutrients such as nitrogen, phosphorus, and potassium in the process. Plants use these nutrients for growth. The nutrients also result in the production of green algae, some blue green algae, diatoms, etc. The accumulating biomass can result in the lake becoming overloaded. However, the continued exceptional clarity of the water in Pintail Lake would seem to indicate that the nutrient load going into the lake is being adequately used.

The problem of nutrient overload is being handled through parallel systems. One goes to Pintail Lake, the other goes to Redhead Marsh. An underground pipeline carries effluent first to a holding area called Telephone Lake. From there the ditch runs to Redhead Marsh, then through a gate to a natural riparian corridor. There is no net discharge into Show Low Creek. To-date water samples taken from the aquifer beneath this system have revealed no unusual contaminant levels that would pose a threat to local drinking water supplies.

Jacques Lake. The cities of Pinetop and Lakeside also divert effluent waters to a man-made marsh called Jacques Lake. This lake was established under a 20-year agreement between the Pinetop-Lakeside Sanitary District and the Arizona Game and Fish Department. Under terms of the original agreement 400,000 gallons of effluent per day would be sent to Jacques Lake for the purpose of wildlife production.

There are seven ponds within this marsh complex, yet only three of these are full of water. Two of the three are actually producing waterfowl on six nesting islands. The crux of the problem in using Jacques Lake to its maximum productive potential is that there is insufficient waste water being diverted there. Currently, over 800,000 gallons of effluent per day is piped to Jacques Lake. Yet even this amount does not use the marsh to its potential. Pond levels reach their peak capacity during winter-spring period, yet through much of the winter the ponds are frozen. But by early summer water levels drop to the point where land bridges form to the nesting islands, thus exposing nesting birds to predation.

In order to provide a more stable water supply to the ponds throughout the year, a large stabilization basin was built in 1989. This basin was designed to serve as a reservoir for the storage of effluent flows during high flow periods when the ponds could not otherwise contain these amounts of water. Releases during low flow periods of the year would then help to stabilize pond levels and thereby increase wildlife production. However, for a number of reasons, no water was diverted to this stabilization basin this past winter.

There appear to be some serious threats to the maintenance of this extremely important wildlife area. The agreement under which Jacques Lake was established is almost at an end. Even given its extension, the amounts of water needed to maintain the productivity of the area are much greater than provided for within the original agreement. Thus, the Sanitary District for Pinetop-Lakeside has apparently no obligation to divert these additional effluent flows to Jacques Lake. There is already a market for these effluent waters in the plans for residential and recreational development in the Pinetop-Lakeside area.

Ron Smith

Verde Update

EPA to Evaluate Resources of the Verde River

Although an exact timetable has not been announced, the San Francisco office of the Environmental Protection Agency (EPA) is planning an extensive survey of the upper Verde River. This project is titled "Advanced Identification" (ADID) and will identify aquatic sites which are potentially suitable or unsuitable for the disposal of fill materials into the Verde River in accordance with EPA's Section 404(b)(1) Guidelines. Keith Hughes, a former University of Arizona graduate student, recently joined the Fish and Wildlife Service staff within their Ecological Services office in Phoenix and will lead the ADID study.

Although the results of the survey will provide only information and advice, the site identification will have an important bearing on the issuance of Section 404 permits in the future. The intent of the survey is to inform applicants for a Section 404 permit in advance of the environmental issues that will be affected by the applicants proposed development. The process will also serve to encourage future development outside of areas designated as unsuitable because of special environmental values. The process, since it will also involve extensive public participation, will greatly increase public awareness of the resource values of the Verde River, and consequently assure that no Section 404 permits will be issued that have not been subjected to significant public scrutiny.

Clarkdale to Childs. Although a 125-mile stretch of the upper Verde River from the headwaters at Sullivan Lake to Horseshoe Lake is within the project's plans, the primary focus will be on the area from roughly Clarkdale to Childs. This is an area that has been subjected to the greatest impact, and has a complex ownership and land-use pattern.

The goals of the planning process are three-fold:

(1) To make the public more aware of the goals of the Clean Water Act, the Section 404 program, and the aquatic resource values of the Verde River,

(2) To assure that future development projects that would discharge fill or dredge materials into waters of the U.S. consider compliance with Section 404 early in the planning process.

(3) To help other federal, state, and local efforts to develop comprehensive riparian management plans that meet the goals of the Clean Water Act for maintaining and restoring the physical, chemical, and biological integrity of the Verde River.

Interagency Coordination. Although the responsibility for this project belongs primarily to EPA

and the Army Corps of Engineers, many other federal, state, and private agencies will participate. Although the ADID project is not formally underway, much of the necessary resource surveys have already been started. For example, EPA has provided a grant to the Arizona Department of Environmental Quality (ADEQ) to produce vegetation maps of the Verde River's riparian corridor at a scale of 1:24,000 (similar to 7.5 minute topographic map series). With aerial photography of the river corridor already available from the U.S. Fish and Wildlife Service, the type mapping will use existing National Wetland Inventory Maps (U.S. F&WS), standards, and techniques to produce the eventual vegetation classification. The map data will then be stored in digital form in the geographic information system (GIS) administered by the State Land Department's Arizona Land and Resource Information System (ALRIS).

A number of agencies will be involved in other aspects of the technical process of assessing resource values and identifying potential adverse effects of development. They are simply too numerous to enumerate here.

Identification of Sites. Even given the enormous background of environmental data, the process of identifying the suitability or unsuitability of river sites for development will be difficult. The EPA will, however, give emphasis to the four restrictions to discharges of fill materials. These are referred to in Section 230.10(a)-(d) of the Guidelines. Sites will have to be classified as to suitable or not with little information about specific developments. The ADID process will, however, develop enough information about sites so that EPA can reach some general conclusions about the development activities that are likely to occur on a site, the likely impacts to the site environment, and the availability of less damaging alternatives.

For more information on the Verde River ADID project, contact Keith Hughes at (602) 379-4720.

Ed.

A model in environmental engineering

The Arcata Marsh and Wildlife Sanctuary

Editor's Note: In this and the next issue of this newsletter we will be allotting space to articles about waste water management and its potential for creating or improving riparian habitat. The byproducts of innovative management and competent planning can be enormous. The Arcata example, though heavily dependent on a system of natural marshes, nonetheless points the way to more effective, less costly means of recycling waste water for beneficial uses.

The following article is a summary of two published articles, one written by Doug Stewart and published in Smithsonian, Vol. 21, No. 1, pp. 174-179, 1990 and the other by J. William Price written a few years earlier for Sierra, May-June 1987.

The Arcata Marsh and Wildlife Sanctuary is a 154-acre public wetlands park wedged between northern California's Humboldt Bay and the small city of Arcata. This same site in the late 1970s contained an abandoned dump, an old railroad trestle, and the rotting remains of a lumber mill. Rebuilt under funding from the State Coastal Conservancy, this sanctuary was dedicated in 1981. This wetland now attracts astounding numbers of ducks, coots egrets, herons, hawks, avocets, and pelicans. Naturalists have recorded almost 200 bird species within the sanctuary.

The quiet, pleasant smelling park belies the odorous origin of its water supply. The sanctuary in part at least, owes its very existence to the outpourings from Arcata's toilets, which have actually become a source of civic pride and humor.

Arcata's raw sewage first flows into an enormous, open-air concrete tub where coarse solids simply settle to the bottom. The waste that is drained from the tub is then channeled to a pair of large oxidation ponds close to the headworks. It is here that the organic matter is broken down by micro organisms. The Arcata system, however, is a more leisurely one than employed in most modern sewage lagoons. The process begins within unvegetated ponds where aerobic bacteria go to work. These ponds are at the head of a series of a vegetated chain of lagoons having a balance of open water and marsh vegetation. These plant filled lagoons are a stabilizing buffer between the upper oxidation ponds and Humboldt Bay.

In addition to this natural process, the waste water is chlorinated soon after it leaves the oxidation ponds, thus killing any potential disease causing organisms. Since chlorine dissipates rather quickly, the process does little harm to plant or animal life. The partially treated sewage effluent takes approximately two months to journey through the series of man-made lagoons and marshes before it is finally pumped into Humboldt Bay. The marsh water enters the bay generally clearer and cleaner than the bay water itself.

This successful use of waste water was not initiated without a fight. The citizens of Arcata and their city council had some serious bureaucratic hurdles to overcome in convincing both state and federal regulatory agencies of the soundness of their plan.

This waste water treatment method of course depended on the availability of extensive areas of low-lying wetlands. Even many inland cities are beginning to look at the possibilities of using existing marshlands to treat their own sewage effluent. Although the methods used here may not be suitable for the desert southwest, we can probably at least take a page from the Arcata scrapbook and take heart at what determination, creative engineering, and citizen support can do to bring about a solution to the problem of waste water disposal.

Ron Smith

Fall Fish Free-For-All Volunteers

Please save a space on your calendars for the Third Annual 1990 Fish Count. Because many of you stated that October was too busy a month, these surveys can be conducted anytime from September through November (we've even been known to take sampling data from December). So you now have one less excuse to get out of this fun-filled Fall Fish Free-for-All.

For those of you that may be hearing about this for the first time, this project was initiated in 1988 as a way of compiling long-term data on the fish fauna in the streams of Arizona and New Mexico. This survey has a special interest in learning more about threatened and endangered native fish populations in these states and monitoring their status.

A report on the 1988 and 1989 sampling data will be sent by August to all of last year's participants and to any other interested parties on request. New and "improved" data sheets and instructions will also be sent out to participants at this same time. Please let us know soon if you are interested in participating in this volunteer program this coming Fall to make sure that we keep you on our mailing list. Your help is greatly appreciated. A simple, hand-scribbled note or phone call to Dean Hendrickson, Troy Corman, or Scott Hart will suffice.

Thank you again to all those energetic volunteers that participated last year and hopefully will again this year. If you have any questions or suggestions feel free to call or write.

Dean Hendrickson
Native Fish Biologist
Arizona Game and Fish Department
(602) 942-3000

—**ANDY**, *from page 1*

riparian habitats remaining in the Tucson Basin.

In all fairness to the Tucson City Council and the Mayor, their recent directive to reduce pumping in the sub-basin is a step in the right direction. Unfortunately, if the Arizona Department of Water Resources data are correct, even with the reduction, pumping there will still exceed natural recharge. They may have bought some time for the trees, but the long range prognosis is not good.

So the question is why does the pumping continue when everyone wants to do the right thing, and the political winds are blowing as favorably as one can reasonably expect them to blow in a state like Arizona? Well, when you separate the wheat from the chaff it comes down to the bottom line: *the cost of water*. Cheap water, or more appropriately, the desire to maintain cheap water, lies at the heart of the problem. Tucson Water can shut the Tanque Verde pumps off entirely, or at the very least cut back pumping to 1981 pumping levels, but not without a cost"the cost of bringing water into the city over greater distances and from greater depths.

Increasing costs, however, flies in the face of another City policy: minimizing the cost-of-service to its water customers. Maintaining the riparian habitat along Tanque Verde Wash is in many respects a quality of life issue, and quality costs. In Arizona, the true value of water includes more than the cost of development and delivery as reflected by local water rates. The true cost of water also includes the harder to quantify public trust values. Until the State's water users recognize the true value of water, and politicians find a way to convince them that they should be paying the true value, then environmental quality programs will always have an economic hurdle to jump. And as the Tanque Verde situation points out, it can be one tall hurdle.

Andy Laurenzi, President

Degradation of a riparian woodland in the Tucson metro area

Groundwater Overdraft in the Tanque Verde Sub-Basin

Tanque Verde Wash is one of the major tributary washes to the Santa Cruz River in the Tucson Basin. Surface flow is intermittent and riparian woodland dominated by deciduous broadleaf forest and mesquite bosque occurs on the floodplain along the valley floor. The area is interspersed with varying intensities of residential development. The area has been identified as a Class I Wildlife Habitat by researchers working at the University of Arizona, and it is generally acknowledged that the riparian woodland along Tanque Verde Wash is some of the highest quality riparian habitat remaining in the Tucson Basin. Pima County has acquired a large tract along Tanque Verde Wash partly to preserve the riparian habitat there.

Data from the Arizona Department of Water Resources indicates that natural recharge in the Tanque Verde Wash sub-basin is in the neighborhood of 7,500 acre-feet per year. Beginning in 1981 and continuing on through 1987, Tucson Water, a public utility, began pumping 8,000 to 9,000 acre feet per year. In 1988, new wells were added and existing wells were replaced and Tucson Water's pumpage increased to 14,400 acre-feet. This was in addition to nearly 4,000 acre feet per year that was and continues to be pumped by local land owners and two private water companies. Within this same three year period, the sub-basin has experienced below normal recharge.

The end result has been the development of a local cone of depression within the Tanque Verde sub-basin. This has seriously impaired surface and sub-surface flows within a portions of Tanque Verde Wash floodplain aquifer. The lowered water table has caused irreparable damage to the riparian woodland. Numerous dead mesquite and cottonwood trees are visible and a number of other trees are in decline and deteriorating. Many of these are large, mature trees which have undoubtedly weathered other periods of low flows as a result of below normal precipitation in the watershed.

Individual well owners in the area have also experienced a severe decline in the water levels in their wells; some wells have actually gone dry. In response to the situation, a group of affected property owners in the area have formed the Tanque Verde Well Owner's Association in an attempt to address their concerns with a collective voice. They have hired an attorney and are now working to influence local decision-makers. Local environmental organizations and the Arizona Riparian Council have added their voice to the rising chorus to stop the groundwater overdraft. The Arizona Riparian Council's actions included the development of a position statement in association with the Sierra Club, Arizona Native Plant Society, and the Tucson Audubon Society. ARC also co-sponsored a public forum in association with the aforementioned environmental organizations and several neighborhood groups, a public forum on the plight of washes in the Tucson Basin.

On Monday, May 14, 1990, the City Council met in a work session and addressed the issue. At that meeting the City Council took several actions, including a reduction in Tucson Water's pumping to below 10,000 acre-feet per year. The Council also developed guidelines on well usage which will help minimize the damage. Unfortunately, even these reduced pumping rates will continue groundwater overdraft that far exceeds natural recharge even in a nor-

See **TANQUE**, *page 7*

Arizona's Fourth Instream Flow Permit

Safeguarding the Hassayampa

The Hassayampa River Preserve near Wickenburg has been granted an instream flow permit. This water right safeguards crucial water supplies for this Nature Conservancy preserve, which protects five miles of some of the best cottonwood-willow riparian forest left in the State.

To date, instream permits have been granted for Ramsey Canyon, Canelo Hills Cienega, and for the Aravaipa Canyon Wilderness.

At least 42 additional instream flow applications have been submitted to DWR by various state and federal agencies and private organizations. In 1987, DWR appointed an Instream Flow Task Force (see report on page 11) composed of representatives from many of these organizations in an attempt to set some guidelines for the biological and hydrological requirements of instream flow applications. While the final report from the Task Force has been due for nearly a year now, DWR's approval of the Hassayampa permit is evidence that, in the interim, the agency is willing to act on some of these applications if technical information is complete, and protests by other water users have been resolved.

In formulating their request for streamflows to protect the riparian forest of the Hassayampa, the Nature Conservancy was challenged by the question, "How does the hydrologic regime support the species composition and structural diversity of this forest?" The many answers to this question are coming primarily from a riparian plant regeneration study by Julie Stromberg and Duncan Patten of the Center for Environmental Studies at A.S.U.. In addition, preserve manager Holly Richter is conducting a riparian community classification, and I am doing research on the influences of flooding in the riparian zone.

It is well recognized that riparian species composition across a floodplain is determined primarily by their elevation above the water table. This measure explains much of the vegetation variability from streamside areas to upper terraces. The permit application was developed using the logic that the current riparian forest composition and structure is dependent upon the relative positions of the vegetation on the floodplain and the current elevation of the water table. We have shown that the water table and streamflows in the preserve are closely related. Therefore, the existing riparian forest is intimately dependent upon existing streamflow conditions, and any changes in the streamflow could have adverse consequences for the integrity of the forest.

The permit was explicitly written to include only non-flood conditions at this time. Now the research team at Hassayampa is faced with the far tougher challenge of determining what aspects of natural floods are critical to regenerating species, developing floodplain landforms, and to providing essential water, nutrients, and substrate conditions for the Hassayampa's plant and animal communities.

Brian Richter
Hassayampa Preserve Manager

—**TANQUE**, *from page 6*

mal rainfall year. While the Council's actions are a step in the right direction their response is only a half way measure which fails to effectively deal with the problem at hand: groundwater overdraft in excess of natural recharge which impairs the surface and sub-surface water resource.

Andy Laurenzi

Corps Responds to Criticisms

The U.S. Army Corps of Engineers has replied to criticisms filed with that agency by the Arizona Floodplain Management Association (AFMA). In replying, the Corps has clarified its position on administration of Section 404 of the Clean Water Act in Arizona, particularly with respect to the use of Nationwide Permit #26. This permit does not allow the discharge of dredged or fill materials if done above the headwaters of the river. Copies of the AFMA letter and the Corps response are available from Jan Farmer, AFMA, 3335 W. Durango St., Phoenix, AZ 85009.

What follows is an excerpt from the Corps response:

The September 26, 1989 letter from the Arizona Floodplain Management Association (FPMA)... makes two recommendations. The first is that the Corps limit their programs to actions that impact *only sensitive reaches of waterway* and that the Corps develop a map showing specific jurisdictional waterways with sensitive environmental aspects. Such a procedure would violate existing federal regulations. The FPMA's call for broader use of nationwide permit #26 goes against current momentum to limit its use in the state of Arizona. Witness the recent efforts to redesignate a particular reach of the Verde River as being below the headwaters and thereby removing nationwide permit #26 from possible use along that reach. Indeed, it is possible that nationwide permit #26 will be modified on a national basis in the near future.

The second recommendation requests that the Corps abandon the use of the ordinary high water mark, or at least equate it with a particular flood recurrence interval. As stated earlier in this letter, such a policy cannot be reconciled with the defini-

—*See* **CORP**, *page 8*

Wetlands Bill Says "No Net Loss" (and means it)

Editor's Note: The following article is reprinted from Conservation 90, Environmental Digest for the Resource Conservation Alliance, Vol.8, No.4, June 1990, National Wildlife Federation.

Promises of wetlands protection by President Bush have fallen flat since he pledged to "protect all existing wetlands, no matter how small." Representative Charles E. Bennett (D-FL) isn't wasting time on empty speeches. His *Wetlands No Net Loss Act of 1990*, H.R.4528, would make President Bush's campaign promise of "no net loss of wetlands" national policy.

Wetlands act as natural pollution filters, provide flood control and water storage, and are a rich nesting ground for fish and other wildlife. According to Bennett, the vast fish, wildlife and ecological resources provided by wetlands make protecting them one of our highest priorities. Our nation cannot afford to lose this rich natural heritage.

Bennett's No Net Loss Act would give grants to states to develop wetland conservation plans, and provide money from offshore oil and gas leases to private landowners who protect wetlands. Also, the bill, recognizing the Army Corps of Engineers' expertise in dealing with permitting of projects involving wetlands, retains the Corps' authority to grant permits for these projects. However, it gives the Corps a clear mandate to give priority to wetland considerations. The new bill keeps the present oversight role of the Environmental Protection Agency (EPA). In addition, it strengthens the role of the federal and state fish and wildlife agencies in reviewing permit actions.

In 1988, the National Wetlands Policy Forum, a group representing diverse interests including development, agriculture, state agencies and environmental organizations"agreed on steps that must be taken to protect wetlands. Recommendations included providing incentives for private landowners who protect wetlands, increased restoration efforts and improvements in current regulatory programs. Instead of implementing the recommendations, however, the administration created a wetlands task force to study the problem. Bush's usual tactic of favoring study over environmental action has allowed drainage of as many as 500,00 acres of wetlands since creation of the task force.

Charlotte Wolfe
National Wildlife Federation

Recent Publications

Improving Southwestern Riparian Areas Through Watershed Management, by Leonard F. DeBano and Larry J. Schmidt. General Technical Report RM-182, December 1989, Rocky Mountain Range and Forest Experiment Station. Available from the RMF&RES, 240 W. Prospect Rd., Ft. Collins, CO 80526.

The Water Resources Research Center at the University of Arizona has announced the publication of two issue papers:

Integrated Water Management in Arizona by Susanna Eden. This paper presents a state-of-knowledge assessment of the institutional opportunities for and constraints hindering integrated water management in Arizona.

Instream Flow Rights: A Strategy to Protect Arizona's Streams by Lois Kulakowski and Barbara Tellman. This paper is a general review of the issues and concerns relating to instream flow rights in Arizona.

The WRRC papers can be obtained free of charge by writing to:

Ms. Debbie Weller, Librarian
Water Resources Research Center
Geology Building, Room 318
University of Arizona
Tucson, AZ 85721

The Salt River Project has announced publication of:

Arizona Waterline, Athia Hardt (editor).

This is a 270 page volume comprising a 16 map, two-color water atlas as well as 60 articles that have been published in the quarterly newsletter of the same name since 1982. The volume traces the evolution of Arizona's water issues from the earliest settlements to recent, controversial concerns. It highlights the political, economic, and environmental aspects of Arizona's lifeblood and provides insight into the many perspectives that have shaped local and state water regulations.

To reserve a copy, send a check payable to Salt River Project in the amount of $31.96 (tax incl.) to:

Corporate Communications
Salt River Project
P.O. Box 52025
Phoenix, AZ 85072-2025

Allow 4-6 weeks for delivery.

—**CORP**, *from page 7*

tion of ordinary high water mark found in existing federal regulations...

The FPMA suggestion of limiting Section 404 jurisdiction to waters that "have not been obliterated by urban development..." is unacceptable for several reasons. First the term obliterated is not defined. Second, the Corps' 404 program incorporates an important public interest evaluation that encompasses much more than biological values. Issues such as private property rights, flood control, open space, water quality, economics, aesthetics, cultural resources, and cumulative impacts are considered as well.

Julia Fonseca
Member, ARC

Relicensing of the Childs-Irving Hydroelectric Project

Most of the information for the following story was supplied by Tom Cain, Fisheries Biologist, Coconino National Forest.

Arizona Public Service Company (APS) has recently applied to the Federal Energy Regulatory Commission for a relicensing of the Childs-Irving hydroelectric project on Fossil Creek in Yavapai and Gila counties. The public input period for the relicensing is 60 days, which began on May 4. Public comment must be received by APS by July 3, 1990, although this deadline by no means ends the opportunity for public involvement. If granted the relicense would be in effect for 50 years.

Fossil Springs supplies a constant 43 cubic feet per second (cfs) for the hydroelectric project. According to Dean Hendrickson of the Arizona Game and Fish Department, this rate of flow makes Fossil Springs "...one of the biggest, if not the biggest natural spring in Arizona." The spring supports a well developed, though very brief, riparian area and a purely native non-game fishery. The roundtail chub, gila chub, and an introduced population of razorback suckers are present at the site. The chubs are presently listed federally as Category 2 species under the Endangered Species Act, and are listed as threatened by the Arizona Game and Fish Department (AGF). The razorback sucker is presently being proposed for listing as endangered under the Endangered Species Act.

Because of the exceptional flow rate from this spring, Hendrickson says that the site offers enormous potential as a transplant site for other rare or endangered species of fish. The spike dace and the loach minnow, for example, only prosper in some of the larger streams in Arizona and New Mexico. The flow rates of Fossil Springs approaches that of some of these streams. Likewise, the woundfin, now on the federal list as an endangered species, and which exists in Arizona only in the Virgin River, would probably do well in Fossil Creek, provided there was sufficient habitat protected from the invasion of exotic fishes. Therein lies the rub.

A diversion dam diverts the entire flow of Fossil Creek at approximately 0.3 miles below the spring and transports it through an elevated wooden aqueduct to the Irving power plant. This flow is picked up again 2.6 miles downstream at the Irving power plant. Water in the channel, if any, combined with water diverted from Fossil Springs and sent through the turbines at Irving, is stored in Stehr Lake and used again in the turbines at Childs.

The relicensing of this hydroelectric project would seem to offer an opportunity to evaluate the feasibility of returning a portion of those diverted flows back to the stream channel. The creation of an additional 2.6 miles of riparian habitat and a safe haven for some rare or endangered native fish species would seem a benefit well worth the additional engineering needed to adjust the operating system at the two power plants.

According to Larry Riley, Aquatic Habitat Coordinator, AGF, recreational opportunity might also be improved through better management of Stehr Lake and upgrading public access. The dredging of all or even a portion of this lake would allow for significant improvement of that fishery.

In addition to the biological values at the springs, the water is rich with calcium carbonate, which can form travertine terraces such as those in Havasu Canyon. However, water is diverted from the Fossil Creek before the calcium carbonate has had a chance to settle out in the channel.

The hydro electric project has been in operation since 1909, Childs having been constructed in 1908-1909 and Irving in 1915. The project is eligible for placement on the National Register of Historic Places. No major changes in the operation of the plants are proposed, although APS may look into operating Childs as a peaking power plant.

Any public comments or proposals for studies associated with the relicensing should be sent to:

Fearl M. Parker
Licensing Department
Arizona Public Service Company
P.O. Box 53999
Phoenix, AZ 85072-3999

Ron Smith

ANNUAL MEETING NOTICE

Mark your calendars early. The annual meeting and program of THE ARIZONA RIPARIAN COUNCIL will be held in the Tucson area, November 2-3. Time, place, and topics of the agenda will be announced later.

Protection and Enhancement Committee

The committee has made significant progress towards producing an annotated bibliography of riparian literature. The bibliography will produced on a copier and also on computer disk. It should be available for distribution in both of these media by the fall annual meeting.

Kris Randall

Water Resources Committee

Instream Flow Update.

There are now five instream flow permit applications which have been granted, the newest ones being Peeple's Canyon and the Hassayampa River. Additionally, The Ramsey Canyon permit has been readjusted to reflect monthly flows. The Arizona Department of Water Resources is moving forward in granting permits although they still have not moved much closer to establishing rules governing the procedure. The next step is for the draft reports of the hydrology and biology subcommittees to go out for review. I would expect the Instream Flow Task Force will be reconvened or reconstituted and the reports discussed. Hopefully, the task force will reach a consensus and the rule making process would move forward. It has been a long process.

ADEQ's Triennial Surface Water Review

The triennial review of Arizona's surface water quality standards by the Arizona Department of Environmental Quality grinds along at frustratingly slow pace. At stake in the process is what the surface water quality standards will be in the State for the next three years. There are many in the State that have a vested interest in the outcome for these standards including the mining industry, irrigation districts, waste water treatment plants, municipalities, natural resource agencies, environmental groups and others.

Andy Laurenzi and I have tried to attend the roundtable discussion groups on behalf of the ARC. These meetings are held approximately every two weeks and, so far, have been held in Phoenix and Tucson. Representatives of environmental groups and resource agencies are badly out-numbered by members of the regulated community. It is important that environmental concerns are voiced so that they can be factored into the equation which will be used to formulate the final standards.

The ARC supports the highest water quality standards which can be scientifically justified for each designated use. Also, we have a keen interest in the creation of wetland and riparian habitats through the use of effluent, recharge water or perhaps other sources. Multiple use and reuse of water in the Southwest must be encouraged in order to keep our State from becoming more tan than it already is.

I will be mailing Appendix C of ADEQ's preliminary draft surface water quality standard rules to ARC members in the State who expressed an interest in working on the Water Resources Committee. Appendix C lists the surface water stream segments of the State and their designated uses. I am asking that the reviewers check the list of stream segments and make additions as needed to make sure that all waters have been considered. Other members who are willing to review the list, please contact me and I will send you one.

Marty Jakle, Chair

Goodbye Bill and Lauren

Bill Kepner has accepted a position with EPA in Las Vegas as a Research Ecologist. Bill will be working with EPA's Environmental Monitoring and Assessment Program (EMAP). Leaving his previous position as Environmental Contaminant Specialist with the Fish and Wildlife Service in Phoenix, he started his new job May 20th. Lauren and their two children, will join him after tying up loose ends in Arizona.

Bill and Lauren have been active in the environmental community for a long time. We will miss them because of all they contributed to natural resource management efforts and also because they are our friends. Bill has served as president of both the Arizona Chapter of The Wildlife Society (TWS) and American Fisheries Society chapter. He was awarded the Doug Morrison Memorial Award twice for his conservation work by the Arizona Chapter of The Wildlife Society. He was also a founding member of the ARC and has worked on behalf of riparian resources through the ARC and other avenues.

Lauren served as a board member of the Arizona Chapter, TWS and is well known for her wildlife drawings and scientific illustrations. She earned her M.S. at ASU studying the ecology of the Gila Monster and she is presently working for the Arizona Game and Fish Department in the Game Branch.

Lauren hopes to find employment in Las Vegas in scientific illustration or computer graphics.

Bill's new address is:

William G. Kepner
U.S. Environ. Protection Agency
Environ. Monitoring Systems Lab
P.O. Box 93478
Las Vegas, Nv 89193-3478
(702) 798-2671 FTS 545-2671

Marty Jakle

Audubon Chapter Sponsoring Marshlands Conference

The White Mountain Chapter of the Audubon Society is sponsoring a three day conference to deal with issues relating to the creation and maintenance of wetlands through the use of reclaimed water. Time and location of the conference will be announced later. The conference will emphasize a practical, hands-on approach to these issues. Several successful projects in the White Mountain area will be visited.

Those interested in presenting a paper for this conference must send a 250 word abstract to Mel Wilhelm, Lakeside Ranger District, R.R. 3, Box B-50, Lakeside, Arizona (602-368-5111), by July 27, 1990.

Registration for the conference will be limited to the first 300 to apply. Send your registration and the $50 fee to: City of Show Low, 200 W. Cooley Road, Show Low, AZ 85901, Attn: Connie Kakavas (602-537-5724). In applying for the conference, include your name, address, phone, and affiliation along with the fee. Registrants will be sent a listing of available lodging.

Editor's Note

You will notice that this issue contains a little more material. That is because more of you are beginning to contribute.

This is appreciated. I no longer have access to as much printed material as when I worked in a government office. Thus, I need the eyes and ears of other ARC members in order to network to the various sources of new information. Keep sending me information about riparian issues that you feel is timely.

In that regard, I could sure use some help in writing copy and researching new information. If you would like to be a part of the newsletter committee, please call me or write. My address is in the masthead.

Also, you will note the change in format. The newsletter is now printed offset, rather than copied. We can now do a good job of printing half-tones. So, if you are submitting a story, send along an appropriate glossy print or other artwork and we'll try to include it with your story.

The deadline for copy for the fall issue of this newsletter is August 15.

Ron Smith

ARIZONA RIPARIAN COUNCIL

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Marty Jakle, Vice President ..... (602) 870-6764
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Marty Jakle, Water Resources ..... (602) 870-6764

Newsletter

Ron Smith, Editor ..... (602) 445-6678

Statement of Purpose

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" is intended to include 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.

This newsletter is published quarterly to communicate current events, issues, problems, and progress that involves Arizona's riparian systems. It also serves to inform you the members of ARC about important items of Council business, and as a forum for you to express your views or news about riparian topics. To contribute articles or information for future issues, please send all materials to:

Ron Smith, ARC Editor
1712 Pine Woods Rd.
Prescott, AZ 86301

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. Dues are $5.00 annual; additional contributions are gratefully accepted. For more information about ARC or to join, write to:

Arizona Riparian Council
Center for Environmental Studies
Arizona State University
Tempe, AZ 85287-1201

Calendar

- **August 15**
  Verde River Corridor Project Steering Committee Meeting, 7:00pm, Clarkdale Memorial Clubhouse, Clarkdale

- **August 12-15**
  CONSERV 90: a national conference on water-supply and conservation, Phoenix, Arizona
  For information: call (614) 761-1711

- **September 6-7**
  Arizona Groundwater Management Act Symposium, Holiday Inn, Casa Grande
  Sponsored by Water Resources Research Center, U. of A.
  Call (602)621-7607 for information; registration is $30.

- **September 20-22**
  Municipal Marshlands: A conference on created wetlands using reclaimed water in the southwest, Show Low, AZ
  Call for papers deadline: July 27, call (602) 368-5111 for information
  Registration information: (602) 537-5724

- **September**
  Arizona Hydrologic Association Conference

- **September 29**
  Verde River Day
  Dead Horse Ranch State Park, Cottonwood

- **October 3-5**
  Ecology and Planning: The Landscape Dimension
  A symposium on landscape ecology offered by University Extension, U.C., Davis
  Red Lion Inn, Sacramento, California
  Call (916) 757-8639 for information

- **October 16-18**
  Managing Wildlife in the southwest, a symposium
  IMoversity of Arizona
  Contact Paul Krausman (602)621-3845 or
  Norm Smith (602)621-1959 for details

- **November 2-3**
  Arizona Riparian Council Annual Meeting
  Tucson; time, location, and topics to be announced later.

- **November 14-16**
  Multiresource Management of Ponderosa Pine Forests
  Little America, Flagstaff
  Call (602) 523-6642 or 523-3031 for information

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Center for Environmental Studies
Arizona Riparian Council
Tempe, Arizona 85287-1201

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