

River Crossings

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Number 3

Restoration Planning for the Rivers of the Mississippi River Ecosystem

The Proceedings of the Symposium entitled, "Restoration Planning for the Rivers of the Mississippi River Ecosystem", presented at the American Fisheries Society Annual Meeting held in Rapid City, South Dakota in September 1993, have recently been published by the National Biological Survey.

This 500 page document includes 32 papers discussing river problems, ecology, and politics across the Basin. It provides a wealth of information and any serious river scientist will find it a useful addition to their library.

Copies can be obtained from the Publications Unit, U.S. Fish & Wildlife Service, 1849 C Street, N.W., Mail Stop 130, Webb Building, Washington, D.C. 20240 (703) 358-1711. Also a limited number of copies are available on a first come first serve basis from the MICRA Coordinator's office.

Third Annual MICRA Meeting

MICRA held its third Annual meeting in Overland Park, KS on May 18-19. The meeting centered, largely, on review of the MICRA Constitution and

By-Laws, coordination with other sub-basin groups, and updates on the 1993 Floods.

It was agreed that the Constitution should be amended to clarify the MICRA name. While the acronym MICRA officially refers to the Mississippi Interstate Cooperative Resource Agreement. The word "Agreement" is confusing in a title and will be replaced with the word "Association". The former Steering Committee will now be referred to as the "Association", and the former Policy Review Committee will become the "Executive Board". All other groups within MICRA will be referred to as "Subcommittees".

Concern was raised over introduction of the black carp. The species is being promoted to control zebra mussels, and the North Central Division of the American Fisheries Society (NCD-AFS) is circulating a resolution to stop its spread. The fear is that black carp pose a threat to all North American mollusk species.

The species was released accidentally in Missouri by a private producer. The fish lost were supposed to be sterile triploids, but no

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one can really be sure. The species (also supposedly triploid) is being

widely cultured in Arkansas, and the state can do little to stop it.

One option discussed would be to request that the Fish & Wildlife Service add it to the Title 50 list for Injurious Wildlife. It was also suggested that MICRA should develop a policy of its own. Chairman Fry agreed to form a Non-Indigenous Subcommittee of MICRA to address this problem.

MICRA Paddlefish/ Sturgeon Subcommittee

The MICRA Paddlefish/Sturgeon Subcommittee met in Overland Park, KS on May 19th.

The Subcommittee agreed to begin implementation of their Strategic Plan by developing a survey of current information on paddlefish and all sturgeon species in the Basin. Chairman Kim Graham (MO) would lead the effort, and Steve Filipek (AR), Clifton Stone (SD), Frank Jernejcic (WV), Gene Zuerlein (NE), and Jerry Rasmussen (USFWS) would collaborate.

The survey would be completed in July and distributed in August to all MICRA participants and others known to be involved in paddlefish and sturgeon research and management in the Basin.

Survey results would be due in by October 1, and summarized by January 1, 1995, with a follow-up Subcommittee meeting scheduled for February.

The group also agreed that Rasmussen should conduct a task prioritization exercise for the Paddlefish/Sturgeon Subcommittee Strategic Plan similar to the one used for the MICRA Strategic Plan.

Graham agreed to discuss sturgeon genetics issues with ichthyologists Bill Pflieger (MO) and Frank Cross (KS) to help define a MICRA position regarding the geneticists' inability to separate sturgeon species using standard genetics techniques.

Sturgeon Genetics

The genetic purity of fish species has been a hotly debated item in fisheries biology in recent years; including the recent stocking of pallid? sturgeon in the Missouri and Mississippi rivers. The Missouri spawned pallid sturgeon were essentially held hostage for over a year at a state hatchery, waiting on the results of genetics analyses to determine their purity (ie. whether or not they were pure or a hybrid of pallid sturgeon and shovelnose sturgeon parents).

Two sturgeon genetics studies have recently been released. The first was conducted by the National Biological Survey (NBS) Fish Health Lab at Kearneysville, WV. According to that report no evidence for divergence

within *Scaphirhynchus* at the cytochrome b locus was found. "This is in agreement with a previous report that used allozyme electrophoresis to demonstrate the genetic identity of pallid and shovelnose sturgeon...Phelps and Allendorf (1983) demonstrated the genetic identity of *S. platyrhynchus* and *S. albus* at a number of allozyme loci. Our data supports this observation. Additionally, we have demonstrated identity between *S. platyrhynchus* and *S. suttkusi* at the cytochrome b locus. The congruence of the allozyme data of Phelps and Allendorf (1983) with the mtDNA data shown here would seem to argue that the three 'species' of the genus *Scaphirhynchus* are probably phenotypic variants of the same species (emphasis added)."

River Crossings

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River Crossings is a mechanism for communication, information transfer, and coordination between agencies, groups and persons responsible for and/or interested in preserving and protecting the aquatic resources of the Mississippi River Drainage Basin through improved communication and management. Information provided by the newsletter, or opinions expressed in it by contributing authors are provided in the spirit of "open communication", and do not necessarily reflect the position of MICRA or any of its member States or Entities. Any comments related to "River Crossings" should be directed to the MICRA Chairman.

A second study was conducted by Genetic Analyses, Inc. under contract to the Corps of Engineers. This report says, in part, "...it is possible that one of the *Scaphirhynchus* individuals is misidentified and in fact a conspecific comparison has been made; however, this merely would illustrate further inadequacy of morphological identification. The other, quite strong possibility remains that pallid and shovelnose sturgeons are actually morphs distinguished primarily by size of a single *Scaphirhynchus* species. Should that hypothesis be true, attempts to identify diagnostic genetic markers may be futile...All the results obtained in the present study suggest conspecificity of pallid and shovelnose sturgeons...The data sets produced during the research described here certainly raise the validity question to a new level of urgency, but more adequate sampling and comprehensive genetic analyses are necessary for a definitive answer to the question."



pallid sturgeon

The Genetic Analyses report was obviously less inclined to make a definitive call on this issue than was the NBS report. In essence using these genetics studies, one could argue that the pallid sturgeon does not exist.



shovelnose sturgeon

However, information recently passed along to the MICRA office, indicates that in other studies using the cytochrome b locus technique, 30 species of African cichlids (obviously morphologically different), could not be separated. For that matter the technique reportedly could not even

be used to separate man from chimpanzee!. Does that mean that man does not exist? Additional information indicates that the genetic marker (cytochrome b locus) is rarely used below the Class level, let alone the Family, Genus, or Species levels.

This will no doubt be the subject of intense discussions at the next Pallid Sturgeon Recovery Team meeting (scheduled for late June in Denver). Many fish geneticists argue that current biochemical techniques are not sophisticated enough to show differences for fish as primitive as sturgeon. Additionally, fisheries biologists argue that failure to find genetic differences when only a small percentage of an organism's genotype is examined is not evidence that no genetic differences, in fact, exist.

Pallid Sturgeon Stocking Update

In early March 1994 (as reported in the last issue of "River Crossings"), the Missouri Department of Conservation (MDC) stocked approximately 7,000 fingerling pallid sturgeon into the lower Missouri River and Mississippi River below St. Louis. The sturgeon averaged about 15 inches long and biologists believed that survival would be good.

Prior to stocking, Kim Graham, Fisheries Research Biologist (MDC) and leader of the project, sent informational letters to all licensed commercial fishermen in Illinois and Missouri alerting them of the proposed stocking and asking them to report any tagged pallid sturgeon captured in their normal commercial fishing operation.

It was not long after stocking that Kim's telephone began ringing. Since stocking, 11 tagged pallid sturgeon fingerlings have been captured. An Illinois commercial fisherman has already captured five pallids about 5-6 miles downstream from their release site. Two of the five were captured a short distance upstream in the Kaskaskia River below a Lock and Dam. Another sturgeon was captured

in an illegally-set gill net in a backwater area below New Madrid, Missouri. A commercial fisherman from Arkansas reported capturing a tagged sturgeon about 5 miles upstream in the St. Francis River and two additional tagged sturgeon were captured by a Tennessee commercial fishermen. A sportfisherman from Cape Girardeau, Missouri caught a tagged pallid sturgeon on pole and line, using worms as bait, and recently reported seeing a large water snake swimming across the Mississippi River with a tagged sturgeon in its mouth. The fisherman recognized the tag but was unable to retrieve the sturgeon and read the tag number.

All of the reported pallid sturgeon have displayed a downstream movement from the point of release, ranging from a few miles to over 200 miles. It is encouraging that several of the sturgeon were captured in tributary streams or in backwater areas. This suggests that the fish are possibly seeking feeding areas rich with invertebrates or other prey. Apparently survival has been good and the fish are beginning to disperse.

If anyone in the Mississippi River Basin has knowledge about tagged pallid sturgeon being sited they are asked to contact Kim Graham, Missouri Dept. of Conservation, 1110 College Avenue, Columbia, MO 65201, (314) 882-9880, FAX (314) 874-8849

U.S. Attorneys Announce Formation of Mississippi River Environmental Council

A group of 18 United States Attorneys from states with jurisdiction over the Mississippi and major tributaries have announced the formation of the Mississippi River Environmental Council. The U.S. Attorneys, as well as Lois Schiffer, Acting Assistant Attorney General at the Department of Justice; Steven Herman, Assistant Administrator for Enforcement at the Environmental Protection Agency (EPA); Rear Admiral Paul Blayney, Commander of the Second Coast Guard District; Earl E. Devaney,

Director of Criminal Enforcement at EPA, and Robert Van Heuvelan, Director of Civil Enforcement at EPA attended a day-long conference (May 20) in St. Louis to review current enforcement efforts, the status of the rivers, as well as review the major environmental laws protecting the waters from pollution.

Speaking at a press conference held during the conference, W. Charles Grace, U.S. Attorney for the Southern District of Illinois; Randall K. Rathbun, U.S. Attorney for the District of Kansas, and Edward L. Dowd, Jr., U.S. Attorney for the Eastern District of Missouri, announced the council has been formed with a clearly defined three-fold purpose:

- To educate all the U.S. Attorneys with jurisdictional responsibility for the Mississippi River and major tributaries of the condition of the rivers;
- To discuss and establish enforcement goals in regard to the rivers and their tributaries;
- To coordinate the enforcement efforts of the prosecutors, federal agencies and state authorities in terms of cleaning up our rivers and keeping them clean.

"We come together as a group to share common issues and common ground on the common interest of one of our nation's most valuable natural resources," Grace said. "We intend to insure the rigorous enforcement of clean water laws and the increased vitalities of this great river."

"The Mississippi, the Missouri and their respective tributaries are the lifeblood of this region and an asset which we must diligently protect," Dowd said. "This council is made up of policy makers, prosecutors, key federal agents and state authorities. It is clear that we must work together to effectively enforce the laws protecting our environment."

Also attending the conference were representatives from all the federal agencies with enforcement jurisdiction over the rivers. For the first time, the

federal authorities asked representatives of public interest groups, such as the Izaak Walton League and the Coalition for the Environment, to present their views on how to protect the purity, beauty and sanctity of our rivers.

For More Information Contact: Christy Marshall Public Affairs Specialist, United States Attorney for the Eastern District of Missouri, 1114 Market Street St. Louis, MO. 63101, (314) 539-2200



Osage River Paddlefish Killed by Reservoir Releases

Water releases from the Corps of Engineer's Harry S. Truman Reservoir on the Osage River reportedly killed hundreds of paddlefish in an early May incident.

High reservoir stages required the release of water through the emergency spillway since only one of six turbines are operational. Shear effects of high velocity discharge simply ripped the fish apart. Tailwater conditions are also close to nitrogen supersaturation. Missouri Department of Conservation (MDC) officials estimate that about 200 adult paddlefish were killed each day for an 8-10 day period. Delayed mortality of injured fish is expected to be at least as great.

Using a monetary value of \$.35/pound, the value of fish killed exceeds one Million dollars. MDC officials are meeting with the Missouri Attorney General to discuss litigation for compensation.

Interagency Floodplain Management Review Committee Draft Report (Executive Summary Excerpts)

"The upper Mississippi and Missouri rivers and their tributaries have played an important role in the nation's history. Their existence was critical to the growth of the upper Midwest of the United States and fostered the development of major cities and a transportation network linking the region to the rest of the world. The floodplains of these rivers provide some of the most productive farmland in the country, offer diverse recreational opportunities to our citizens, and contain important ecological systems. While the development of the region has produced significant benefits, it has not always been conducted in a wise manner. As a result, today the nation faces three major problems:

- ...people and property remain at risk, not only in the floodplains of the upper Mississippi River Basin, but also throughout the nation. Many of those at risk neither fully understand the nature and the potential consequences of that risk nor share fully in the fiscal implications of bearing that risk.

- ... only in recent years have we come to appreciate fully the significance of the upper Mississippi River Basin's fragile ecosystems. Given the tremendous loss of habitat over the last two centuries, many suggest that we now face severe ecological consequences.

- ... the division of responsibilities for floodplain management...is not clearly defined....floodplain management varies widely among and within federal, state, tribal and local governments.

'The Interagency Floodplain Management Review Committee proposes a better way to manage our nation's floodplains...Now is the time to:

- Share responsibility and accountability for accomplishing floodplain management among all levels of government and with the citizens of the nation. The federal government cannot go it alone nor should it take a dominant role in the process.

- Establish, as goals for the future, the reduction of the (Nation's) vulnerability...to the dangers and damages that result from floods and the concurrent and integrated preservation and enhancement of the natural resources and functions of floodplains. Such an approach seeks to avoid unwise use of the floodplain, mitigate vulnerability when floodplains must be used, and mitigate damages when they do occur.

- Organize the federal government and its programs to provide the support and the tools...to carry out and participate in effective floodplain management.

'...In reviewing the Midwest Flood of 1993, the Committee found that:

- The Midwest Flood of 1993 was a hydrometeorological event unprecedented in recent times... Pre-flood rainfall saturated the ground and swelled tributary rivers. Subsequent rains quickly filled surface areas, forcing runoff into the lower lands and creating flood conditions. The (flood's) recurrence interval ranged from less than 100 years at many locations to near 500 years on the segment of the Mississippi from south of Burlington, Iowa, to St. Louis, Missouri. At 45 U.S. Geological Survey (USGS) gaging stations, the flow levels exceeded the 100-year mark. The duration of the flood added to its significance. Many areas were under water for months.

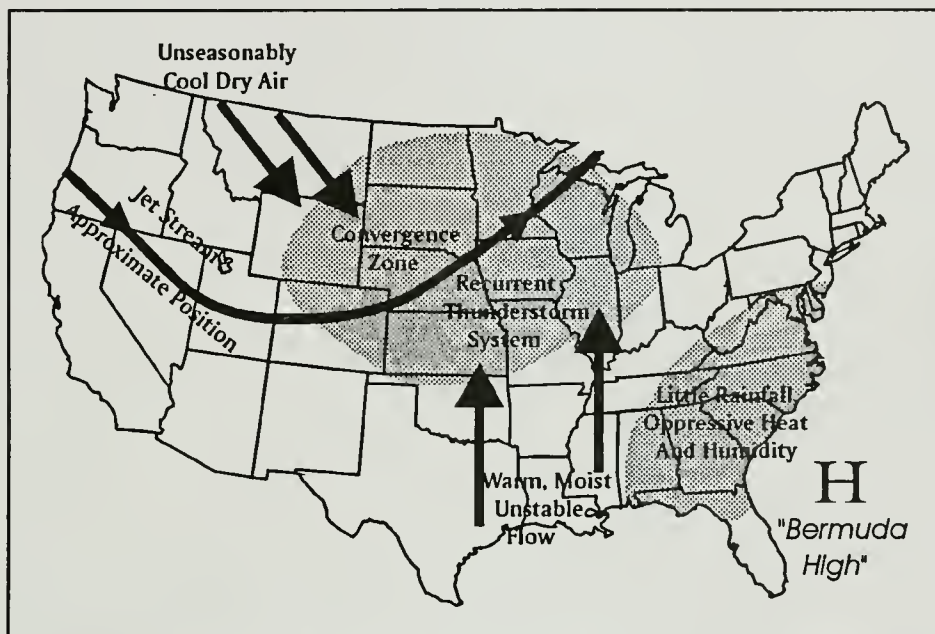
- Rainfall and floods like the 1993 event will continue to occur... Activities in the floodplain, even with

levee protection, continue to remain at risk.

- The loss of wetlands and upland cover and modification of the landscape throughout the basin over the last century and a half dramatically increased runoff... Although upland watershed treatment and restoration of upland and bottomland wetlands can reduce flood stages in more frequent floods (25 years and less), it is questionable whether they would have significantly altered the 1993 conditions.

backup as opposed to riverine flooding. Flood response and recovery operations cost the nation in excess of \$6 billion. In addition there are many costs that can not yet be quantified. Impacts on businesses in and out of the basin have not been calculated...

- Flood damage reduction projects, and floodplain management programs where implemented, worked essentially as they were designed and significantly reduced the damages to population centers, agriculture and industry...



Persistent Weather Pattern That Caused the 1993 Floods

- Human activity throughout the basin has caused significant loss of habitat and ecosystem diversity. Flood damage reduction and navigation works, and land use practices have adversely altered bottomland habitat

- The costs to the nation from the flood were extensive...Thirty-eight deaths...and...damages range from \$12 to \$16 billion. Agriculture accounted for over half of the damages and more than 70 percent of the agricultural damages occurred in upland areas where ground saturation prevented planting or killed the crop. Nearly 50 percent of the approximately 100,000 homes damaged, suffered losses to groundwater or sewer

- Many locally constructed levees breached and/or overtopped. These failures frequently resulted in considerable damage through scour and deposition to the land behind the levees.

- Flooding during the 1993 event would have covered much of the floodplains of the mainstem lower Missouri and upper Mississippi rivers whether or not levees were there. Levees can cause problems in some critical reaches by backing water up on other levees or lowlands. Locks and dams and other navigation related structures did not raise flood heights.

'...the Committee reached the following conclusions:

- The division of responsibilities for floodplain management activities among and between federal, state, tribal and local governments needs to be more clearly defined...State and local governments must have a fiscal stake in floodplain management; without this stake there are few incentives to be fully involved in floodplain management. State governments must assist local governments in dealing with federal activities. The federal government must set the example in floodplain management activities.
- The National Flood Insurance Program (NFIP) needs improvement... Provision of major federal disaster assistance to those without insurance creates a perception with many floodplain residents that purchase of flood insurance is not a worthwhile investment. The mapping program is under funded and needs greater accuracy and coverage. Operating rules within the program vary from disaster to disaster and need stabilization.
- The principal federal water resources planning document, Principles and Guidelines, is outdated and does not reflect a balance among the economic, social and environmental goals of the nation...Many critics of Principles and Guidelines see it as biased against non-structural (flood control) approaches.
- Existing federal programs designed to protect and enhance the floodplain and watershed environment are not as effective as they should be. They lack emphasis, coordination, flexibility and funding and as a result, progress in habitat improvement is slow.
- Federal pre-disaster, response, recovery and mitigation programs need streamlining but are making marked progress. The aggressive and caring response of the government to the needs of flood victims clearly was recognized but many coordination problems developed and need to be

addressed. Buyouts of flood prone homes and damaged lands made important inroads in reducing future flood losses.

- There is an absence of a coordinated strategy for effective management of the water resources of the upper Mississippi River Basin. Responsibility for integrated navigation, flood damage reduction and ecosystem management is divided among several federal activities.
- The current flood damage reduction system in the upper Mississippi River Basin represents a loose aggregation of federal, local and individual levees and reservoirs and does not ensure the desired reduction in the vulnerability of floodplain activities to damages. Many levees are poorly sited and will fail again in the future. Without some change in current federal programs, some of the levees will remain eligible for post-disaster support. Levee restoration programs need greater flexibility to provide for concurrent environmental restoration.



- Science and technology are not being used to full advantage in gathering and disseminating critical water resources management information. Opportunities exist to provide information needed to better plan the use of the floodplain and to operate during crisis conditions.

'The Committee developed the following recommendations:

- To ensure that the floodplain management effort is organized for success, the President should:
 - Propose enactment of a Floodplain Management Act which establishes

a national paradigm for floodplain management, clearly delineates federal, state, tribal and local responsibilities, provides fiscal support for state and local floodplain management activities and recognizes states as the nation's principal floodplain managers;

- Issue a revised Executive Order clearly defining the responsibility of federal agencies to exercise sound judgement in floodplain activities; and
- Activate the Water Resources Council to coordinate federal and federal-state-tribal activities in water resources. As appropriate, reestablish river basin commissions to provide a forum for federal-state-tribal coordination on regional issues.

- To focus attention on comprehensive evaluation of all federal water project and program effects, the President should immediately establish environmental quality and national economic development as co-equal objectives of planning conducted under the Principles and Guidelines. Principles and Guidelines should be revised to accommodate the new objectives and to ensure full consideration of non-structural alternatives.

- To enhance coordination of project development, to address multiple objective planning and to increase customer service, the Administration should support collaborative efforts among federal agencies and across state, tribal and local governments.

- To ensure continuing state, tribal and local interest in floodplain management success, the Administration should provide for federal-state-tribal-local cost-sharing in pre-disaster, recovery, response and mitigation activities.

- To provide for coordination of the multiple programs dealing with watershed management, the Administration should establish an Interagency Task Force to develop a coordination strategy to guide these actions.

- To take full advantage of existing federal programs which enhance the floodplain environment and provide for natural storage in bottom and uplands, the Administration should:
 - Seek legislative authority to increase post-disaster flexibility in the execution of the land acquisition programs;
 - Increase environmental attention in federal operation and maintenance and disaster recovery activities;
 - Better coordinate the environmentally-related land interest acquisition activities of the federal government; and
 - Fund, through existing authorities, programmatic acquisition of needed lands from willing sellers.
- To enhance the efficiency and effectiveness of the National Flood Insurance Program, the Administration should:
 - Take vigorous steps to improve the marketing of flood insurance, enforce lender compliance rules and seek state support of insurance marketing;
 - Reduce the amount of post-disaster support to those who were eligible to buy insurance but did not, to that level needed to provide for immediate health, safety and welfare; provide a safety net for low income flood victims;
 - Reduce repetitive loss outlays by adding a surcharge to flood insurance policies following each claim under a policy; providing for mitigation insurance riders and supporting other mitigation activities;
 - Require those who are behind levees that provide protection against less than the standard project flood discharge to purchase actuarially based insurance. This will ensure that the residual risk is borne by the affected parties;
 - Increase the waiting period for activation of flood insurance policies from 5 to 15 days to limit purchases when flooding is imminent;
 - Leverage technology to improve the timeliness, coverage and accuracy of flood insurance maps; support map development by levies on the policy base and from appropriated funds because the general taxpayer benefits from this

- program; and
 - Provide for the purchase of mitigation insurance to cover the cost of elevating, demolishing, or relocating substantially damaged buildings.
- To reduce the vulnerability to flood damages of those in the floodplain, the Administration should:
 - Give full consideration to all possible alternatives for vulnerability reduction, including permanent evacuation of flood prone areas, flood warning, floodproofing of structures remaining in the floodplain, creation of additional natural and artificial storage and adequately sized and maintained levees and other structures;
 - Adopt flood damage reduction guidelines based on revised Principles and Guidelines which would give full weight to social, economic and environmental values and assure that all vulnerability reduction alternatives are given equal consideration; and
 - Where appropriate, reduce the vulnerability of population centers and critical infrastructure to the standard project flood discharge through use of floodplain management activities and programs.
- To ensure that existing, federally constructed, water resources projects continue to meet their intended purposes and are reflective of current national social and environmental goals, the Administration should require periodic review of completed projects.
- To provide for efficiency in operations and for consistency of standards, the Administration should limit repair, rehabilitation and construction of levees under federal programs to the U.S. Army Corps of Engineers.
- To ensure the integrity of levees and the environmental and hydraulic efficiencies of the floodplain, states and tribes should ensure proper siting, construction and maintenance of non-federal levees.

- To capitalize on the successes in federal, state, tribal and local pre-disaster, response, recovery and mitigation efforts during and following the 1993 flood and to streamline future efforts, the Administration should:
 - Through the NFIP Community Rating System, encourage states and communities to develop and implement floodplain management and hazard mitigation plans;
 - Provide funding for programmatic buyouts of structures at risk in the floodplain;
 - Provide states the option of receiving Section 404 Hazard Mitigation Grants as block grants;
 - Assign the Director, Federal Emergency Management Agency, responsibility for integrating federal disaster response and recovery operations; and
 - Encourage federal agencies to use non-disaster funding to support hazard mitigation activities on a routine basis.
- To provide integrated, hydrologic, hydraulic and ecosystems management of the upper Mississippi River Basin, the Administration should:
 - Establish Upper Mississippi River and Missouri River Basin Commissions to deal with basin level program coordination;
 - Assign responsibility, in consultation with the Congress, to the Mississippi River Commission (MRC), for integrated management of flood damage reduction, ecosystem management and navigation on the Upper Mississippi River and tributaries;
 - Expand MRC membership to include representation from the Department of the Interior;
 - Assign MRC responsibility for development of a plan to provide long-term control and maintenance of sound federally built and federally supported levees along the main stems of the Mississippi and Missouri Rivers. This support would be contingent on meeting appropriate engineering, environmental and social standards;
 - Seek authorization from the Congress to establish an Upper Mississippi River and Tributaries

project for management of the federal flood damage reduction and navigation activities in the upper Mississippi River Basin;

- Establish the upper Mississippi River Basin as a cross-agency Ecosystem Management Demonstration Project; and
- Charge the Department of the Interior with conduct of an ecosystems needs analysis of the upper Mississippi River Basin.

- To provide timely gathering and dissemination of the critical water resources information needed for floodplain management and disaster operations, the Administration should:
 - Establish at USGS an information clearing house to provide federal agencies and state and local activities the information already gathered by the federal government during and following the 1993 flood and to build on the pioneering nature of this effort; and
 - Exploit science and technology to support monitoring, analysis, modeling, geographic information system and decision support system development for floodplain activities."

For more information on the report contact: BG Gerald Galloway, Interagency Floodplain Management Review Committee, 730 Jackson Place, NW, Washington, D.C. 20503, (202) 408-5295.

Vision for the Floodplain

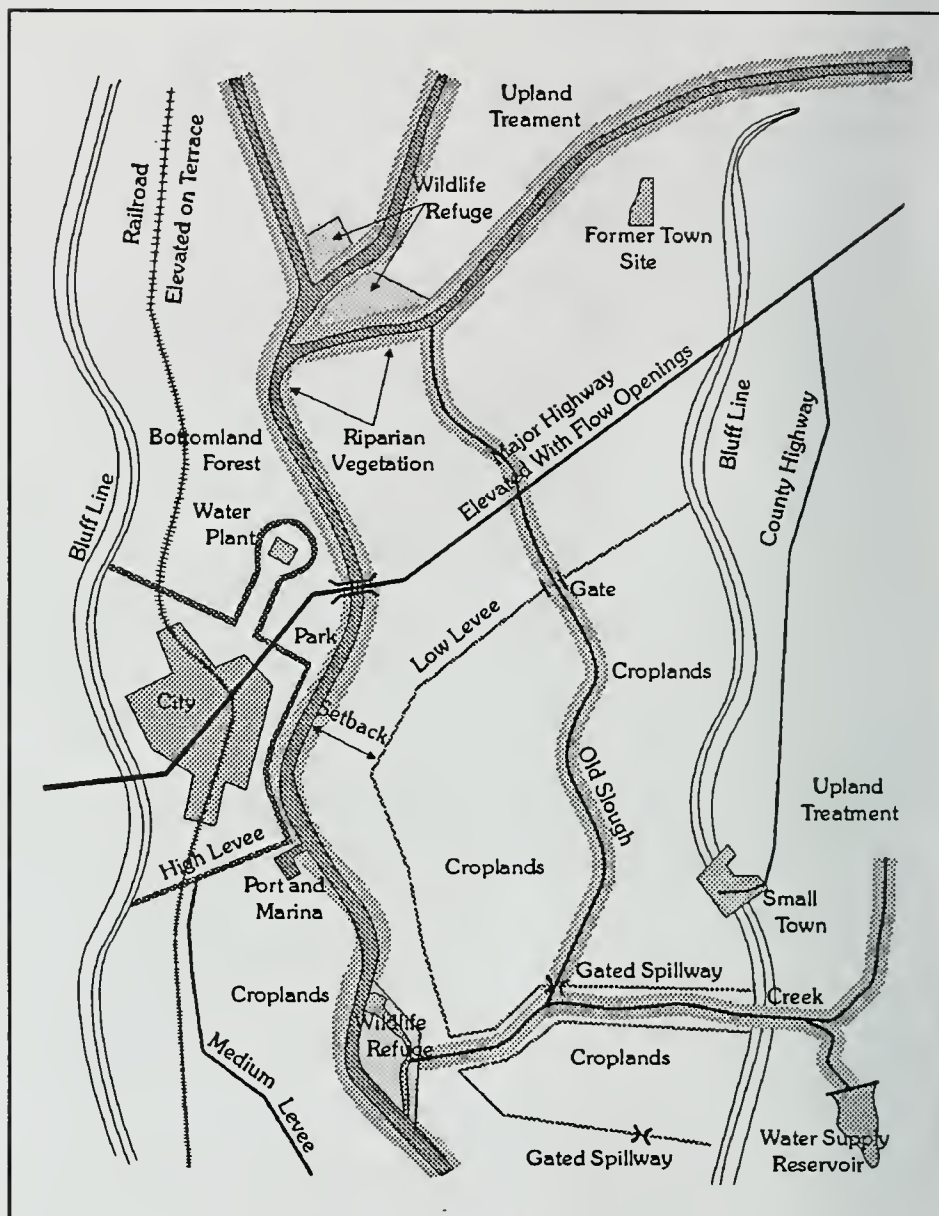
The Interagency Floodplain Management Review Committee developed the following vision for 21st century floodplains:

"The United States, as it moves into the 21st Century, is at a crossroads in the use of floodplains. The nation may choose to use these flood-prone lands for the primary purpose of economic development, or it may take action to better balance their economic and environmental outputs. Floodplain resources can be shared by human occupants and natural systems...

'...watershed-focused programs are now emerging, and the United States has begun to move in a new direction. Concern for the environment and sustainable development as well as

at most risk, gradually has become a partner with the construction of dams, levees, and floodwalls.

'...the Review Committee proposes



Vision of Typical 21st Century Floodplain

recognition of the severe limits of federal spending and funding opportunities lost in flood recovery, speak clearly to the need for reexamining the nation's flood damage reduction strategy.

'...A movement to reduce flood damages through non-structural means, limiting unwise development of the floodplain and evacuating those

goals for the nation's future use of its floodplains and management of that use:

'From a strategic viewpoint:

- Reduce the vulnerability of the nation to the dangers and damages that result from floods.
- Reduce the vulnerability to urban

areas, industry and agriculture, when such reduction is justified and reasonable; avoid new development when reduction is not appropriate.

- As appropriate, move those currently at risk from the floodplain.
- Strive to eliminate threats to life, property, and the environment, and to the mental health and well being of floodplain occupants.
- Ensure the viability of critical infrastructure and the regional economy.
- Preserve and enhance the natural resources and functions of floodplains.
- Treat the floodplain as part of a physical and biological system that includes the floodplain within the larger context of its watershed.
- Seek to identify and enhance the cultural, historic, and aesthetic values of floodplains.
- Where appropriate, restore and enhance bottomland and related upland habitat and flood storage.
- Using existing programs acquire over time environmental interest in these lands from willing sellers.
- Ensure the consideration of social and environmental factors in all actions relating to the floodplain.

'From an operational viewpoint:

- Streamline the floodplain management process.
- Implement consistent, equitable, flexible, cost-shared and efficient floodplain management by improving the National Flood Insurance Program, federal-state-tribal-local-individual relationships, and the conduct of mitigation and disaster planning and execution.
- Ensure federal-state-tribal-local-individual collaboration and accountability in a bottom-up, shared planning and decision making process.
- Reduce the cost to the nation of flood damages.
- Share the risk among all levels of government and among flood affected individuals.
- Capitalize on technology to provide information required to manage the floodplain.
- Provide timely and accurate information to assist in identifying

hazards, determining impacts of proposed actions, and developing a temporal and spatial basis for long-term strategies.

- Leverage the strength of geographic information systems.

'Were this vision (See accompanying figure) to be implemented... Human activity in the floodplain would continue, but with a clear recognition that any such activity would be subject to the residual risk of flooding and assumption of the costs of this risk would be by those sponsoring the activity.

'Determining future activities would depend on historical settlement, on a balancing of the economic, social, and environmental impacts of an activity together with a recognition of its place in the hydraulic regime of the river basin and what physical impacts its existence has on other segments of that basin.

'Urban centers whose existence depends on a river for commerce or whose locational advantage is tied historically to a floodplain would be protected from the ravages of devastating floods by means of levees, floodwalls, upstream reservoirs, or floodwater storage in managed upland and floodplain natural areas. Sections of communities with frequently flooded businesses or homes would become river-focused parks and recreation areas as former occupants relocated to safer areas on higher ground.

'In areas outside of these highly protected communities, where land elevation provided natural protection from floods, state and local officials would control new construction by requiring it to be at elevations well out of harm's way. Those who were at risk in low lying areas would be relocated, over time, to other areas. Higher land in these alluvial areas would continue to produce rich harvests.

'Outside of the urban areas, industry would protect its own facilities against major floods. Critical infrastructure, such as water and wastewater

treatment plants, power plants, and major highways and bridges would be either elevated out of the flood's reach or protected against its ravages. Much of this infrastructure, as well as the homes, businesses, and agricultural activities located behind lower levees, would be insured against flooding through full participation in commercial or federally supported insurance programs.

'At the upstream end of many levees, federally built water-control structures would permit river waters to keep sloughs wet throughout the year maintaining and restoring aquatic habitat and resultant benefits for fisheries, waterfowl, and other wildlife. Levees would be modified to provide for controlled overtopping in the event of major high waters, eliminating the catastrophic failures that have occurred in the past.

'Some bottomland owners behind modified levees would choose to convert from row crops to alternative crops or silviculture or to return their lands to a natural state under federal or state easements. Owners would base their decisions on private and government analyses that found their land too wet for farming or in a location where levee protection was impossible to maintain.

'Upland of the floodplain, federal-state-tribal-local programs to improve the treatment of lands, control new runoff, and restore wetlands, would reduce the flows during frequent floods and shave the peaks off larger events. Both commercial and recreational vessels would continue to ply the river's waters, operating in a navigation system that would enhance riverine ecosystems through water-level adjustments and control.

'Modifications in river-control structures would continue to increase fisheries and wildlife habitat. Floodplain activity would be guided by broad-based plans of federal-state-tribal-local governments working together as partners in a streamlined floodplain management effort.

'Operation of the waterway and the levee systems, with their attendant environmental components, would be focused in a single agency that would collaborate with other interested agencies. Levees along main stem rivers and principal tributaries would be maintained on a cost-shared basis by the federal-state governments and local levee boards. Decisions concerning activities in and near the water would be vetted in computer models indicating the effects of such actions on other regions of the river basin. Forecasts of river conditions would reflect the availability of basin-wide data and the rapid processing of these data. Use of high technology remote sensing platforms and data-filled geographic information systems would provide highly accurate information on which to base key decisions for both planning and crisis management."

Source: Sharing the Challenge: Floodplain Management into the 21st Century, Report of the Interagency Floodplain Management Review Committee to the Administration Floodplain Management Task Force, May 26, 1994.

UMRCC Floodplain Statement

"During the spring and summer of 1993 the five Upper Mississippi River States of Minnesota, Wisconsin, Iowa, Illinois and Missouri were severely impacted by flooding along the Upper Mississippi River (UMR) and its tributaries. Record flood levels, damaging municipal and agricultural interests along the UMR, were reached at several gauging stations. Communities within the UMR floodplain were inundated with flood water for much of the summer; agricultural losses occurred when levees were breached allowing crops, homes, and buildings to be flooded. These losses could have been minimized if lessons taught by the UMR flood of 1973 had been heeded. To avoid future severe flood damage along the UMR, the Upper Mississippi River Conservation Committee (UMRCC) believes that a change in

floodplain management philosophy must be initiated....

'The 1942 Corps of Engineers-Bureau of Reclamation's Pick Sloan Plan identified a way to reduce flood stages along the Missouri River by setting levees back in the river floodplain as much as 3,000 to 5,000 feet from the river. The UMRCC supports this approach to floodplain management and recommends this concept be adopted as levee systems are rebuilt.



'Natural resource agencies along the UMR are committed to a holistic river management concept commonly referred to as "ecosystem management". This management philosophy is consistent with, and in fact calls for, the relocation of levees further back from the floodway to allow annual floodplain inundation to occur. This management procedure emulates the pre-dam hydrography, thus benefiting fish and wildlife populations that have evolved and rely upon spring and fall floodplain inundation. Levee setback will increase flood storage capacity along the UMR's floodplain resulting in lower flood stages and less damage to urban areas.... The '93 flood benefitted the riverine environment by inundating the UMR floodplain through much of the summer and early fall providing increased spawning and nursery habitat for river fishes, as well as a source of food and nesting habitat for waterfowl and shore birds.

'The '93 flood created numerous scour holes which over time will develop wetland habitat characteristics. The UMRCC recommends that during post flood construction, consideration be given to preserving these areas.

'The UMRCC endorses the concept of buying out flood prone river communities and relocating them outside the floodplain. This action will benefit the river ecosystem as more floodplain acres are devoted to non-urban uses while reducing the long-term cost of flooding.

'In conjunction with reducing long-term costs of flooding, additional floodplain acreage will provide positive economic benefits through increased fish and wildlife habitat used by recreationists. Additionally, removing communities from the floodplain will increase floodplain flood storage capacity resulting in lower flood elevations.

'The UMRCC further endorses the Administration's effort to rethink current floodplain management policies by establishing an Interagency Floodplain Management Committee to review flood management directives and the formation of a Scientific Assessment and Strategy Team (SAST) to collect and analyze flood data. The UMRCC further recommends that the SAST be continued after their six month appointment expires....

The Flood of '93 has provided an opportunity for our Nation to review and rethink past floodplain philosophy. Hard lessons have been dealt to agricultural and municipal interests. It's time to heed them. The '93 flood benefitted the River's aquatic habitat and biota. The long-term fish and wildlife benefits associated with periodic inundation of the floodplain should be recognized as legitimate floodplain uses and restored to the extent practicable."

Source: Upper Mississippi River Conservation Committee Flood Plain Management and Post Flood 93 Recovery position statement. Adopted at the 50th Annual UMRCC

Floodplain Erosion and Scour (Excerpt from Floodplain Management Review Committee Draft Report)

"...Significant floodplain erosion and deposition occurred during the 1993 flood, principally on floodplain agricultural lands along the Missouri River. Preliminary analyses of aerial photography, satellite imagery, and historic Missouri River floodplain maps reveal that more than 90 percent of the areas affected by significant erosion and deposition are associated with breached levees situated in active, high-energy floodplain zones. Review of the history of levee failures in this area shows levees have been breached repeatedly at sites of natural river cutoffs or chutes in the past three decades. Construction of levees across these high energy channels is a risky investment which has required repetitive repair. In most cases where levees breached, scour holes, locally known as blow holes or blue holes, occurred. These holes, typically 25 to 50 feet deep, are caused by scouring...(when)...the levee is overtopped or breached, releasing river water through the constricted levee breach with velocities similar to that of a dam break flood wave. This sudden release of energy scoured tremendous volumes of materials creating both new aquatic and terrestrial habitat.

'Erosion zones of scour and stripping can extend as far as one mile downstream from the larger breaches (See accompanying figure). Locally constricted floodflows in breaches through railway embankments and in the vicinity of railroad and highway bridges act in a similar manner...

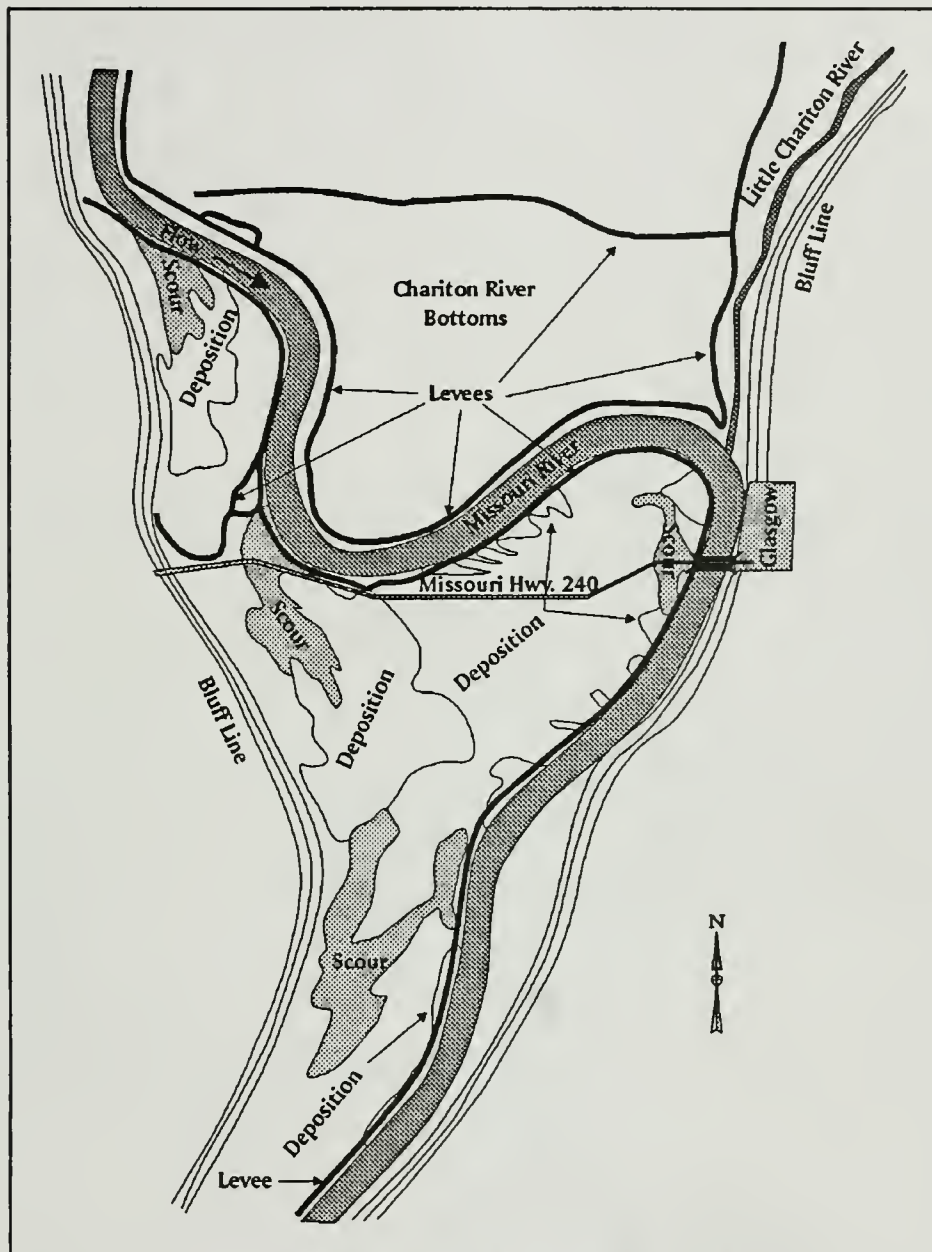
'The Pick-Sloan plan authorized by Congress in 1944 called for the creation of a floodway between levees, ranging from 3,000 to 5,000 feet wide, along the Missouri River from Sioux City, Iowa, to the mouth near St. Louis, Missouri. The purpose of this floodway was to provide

sufficient space for flood waters to pass and reduce potential damage to adjacent farmlands.

'For a number of reasons, this plan was never implemented. The Flood of 1993 demonstrated the need for some form of floodway to provide greater capacity to convey flood flows. Implementation of any future flood

zone of the river, which commonly is wide in areas of large meanders and narrow in straighter portions of the river.

'Conclusion: Levee location and height are factors in determining erosion and deposition in the floodplain. There are certain locations where levees should not be



High Energy Erosion Zone of the Missouri River

damage reduction plan should recognize that in lieu of a standard setback distance, the floodway should coincide with the natural high-energy

constructed. In these cases set back levees might allow normal river functions. Each situation needs to be evaluated on its own merits."

Source: Sharing the Challenge: Floodplain Management into the 21st Century, Report of the Interagency Floodplain Management Review Committee to the Administration Floodplain Management Task Force, May 26, 1994.

People, the Media, and the Federal Flood Response (Excerpt from Floodplain Management Review Committee Draft Report)

"Compassion plays a major role in the way people respond to disasters and rush to provide disaster relief. The speed with which the entire nation learns of disasters is almost immediate. For example, because of the television coverage of the 1989 World Series, those watching had the experience of actually being present during a major earthquake. As for the 1993 floods, the nation can remember pictures carried by CNN of the house being swept away when a levee was breached. Viewers were left wondering how this could happen, rather than why the house was there in the first place.

'The best media flood-relief stories became those of suffering people and those complaining about the lack of quick government assistance. Politicians and decision makers were bombarded with calls and they responded by declaring additional counties part of the disaster area and

by promising quick relief. FEMA Disaster Field Offices (DFOs), set up in many cities and towns, were themselves flooded with applications for disaster relief. The media attention helped agencies get needed information to citizens, but may also have increased expectations about the level of assistance that was available or the speed at which help could be provided.

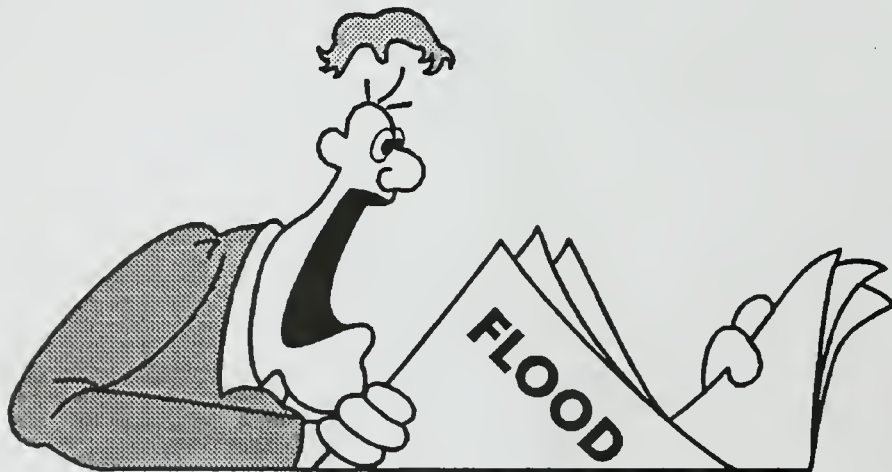
'Human compassion and the way news is reported influences how Congress and nation respond to disasters. A great push arose to replace levees along the Missouri River many of which should not be replaced without careful design and engineering consideration. If federal response to disaster relief is driven too much by an immediacy of the event, rather than by rational decision making, the effort to put everything back to the way it was may increase future risk rather than reaching long-term solutions to major problems.

'In the haste of some disaster relief and under the pressure of the media effect, the nation may have subsidized some bad decisions and penalized some good ones, foregoing opportunities for change. A caring, supportive approach for disaster victims must never be lost; but there must be, in tandem, an effort to ensure decision making that reflects long-term, as well as short term goals."

Source: Sharing the Challenge: Floodplain Management into the 21st Century, Report of the Interagency Floodplain Management Review Committee to the Administration Floodplain Management Task Force, May 26, 1994.

Missouri River Bank Stabilization and Navigation (Excerpt from Floodplain Management Review Committee Draft Report)

"Clearly, there is a relationship between the Missouri River Bank Stabilization and Navigation Project and the decline of habitat and ecosystems along that river. In recent years the USACE (U.S. Army Corps of Engineers) has made efforts to adjust operation of the system to better accommodate environmental concerns. Nevertheless, during the course of its review, the Committee encountered many individuals and several conservation agencies that believe the economic and social benefits derived from the project do not outweigh the environmental costs associated with it. The Committee reviewed benefit-cost calculations for the navigation component of the project prepared by the USACE Institute for Water Resources using the current Principles and Guidelines procedures for the reach of the river between Sioux City, Iowa and Kansas City. This analysis indicated that, using the existing procedures, there is a favorable ratio, even when navigation tonnage involving river operations and bank stabilization benefits are excluded. The Committee is also aware that the USACE is in the process of completing its multi-year study of the water control operations of the Missouri River mainstem reservoir system and is about to release a draft Environmental Impact Statement (EIS) covering the program of releases from the reservoirs and their relationship to the ecology of the river, navigation, hydropower, flood control, water supply and recreation. Discussions with the USACE indicate that the draft EIS will address many environmental



concerns. The 'Master Manual' review study is being conducted under a full public involvement process in accordance with NEPA. The Committee believes it would be appropriate for the USACE, after completion of the action on the Master Manual, to conduct an analysis of potential modifications to the structural components of the navigation system to determine what benefits can be obtained through these actions. It should also, under the recommended procedures for project review (Chapter 5), conduct an analysis, by reach, of the total benefits and costs of navigation operations on the Missouri River."

Source: Sharing the Challenge: Floodplain Management into the 21st Century, Report of the Interagency Floodplain Management Review Committee to the Administration Floodplain Management Task Force, May 26, 1994.

A Letter From the Floodplains

In April we received a letter from Richard S. Garst, President of the Atchison County, Missouri Levee District #1. Mr. Garst is one of our readers and requested that we include in this issue of "River Crossings" the text of a letter he had received from "a farm wife touched by the flood of 1993". That letter follows:

"Roots Don't Grow Deep in Wetlands"

"They want to move us all out and call this wetlands. They, meaning the faceless minority that seem to have all the power or at least the loudest voice. This land has only flooded twice in forty-one years. This house

was here both times. My great-grandparents lived here during the first flood. My grandpa told me about it. He helped farm this place. He bought it at the sale when my great-grandparents both died. Great-grandma died of heart failure here in this house, when the doctor told her that her husband had died earlier that day.

"We moved to this house that year. I remember when I was in the first grade my dad picking me up at school to take me to my new home. I grew up here, and dad and grandpa farmed together. Some of my best memories are the times I spent with them. I spent my summers working in the field with dad.

"My father died in those fields. Less than a half mile from the home in a combine accident that shouldn't have happened, but it did. My grandpa and mother were his companions at death. God called him home and I came back here to my heaven on earth. You see, I married a farmer and we came back and took over the family farm.

"Farmers are not just businessmen, although that's part of it. Farming is a way of life, it is my life. My father's blood is in this soil, my grandparents' and great-grandparents' sweat and labor is in this house and land. My roots are here and they run deep, with four generations having farmed this ground. No, this land is not wetlands it is a family farm, my home and my life." – Joni Sapp, Rock Port

We are pleased to include Ms. Sapp's letter in this issue of "River Crossings". We fully understand and appreciate her attachment to the land, because

many of us also came from rural and farm backgrounds.

The same kind of compassion and caring for the land and its ecosystems (expressed by Ms. Sapp) is what brought many of us into the business of land stewardship and ecosystem conservation. We aren't arguing that everyone should be driven from the floodplain. To the contrary, there is certainly a place for farming in the floodplains. But no one interest or activity should be promoted at the expense of everything else.

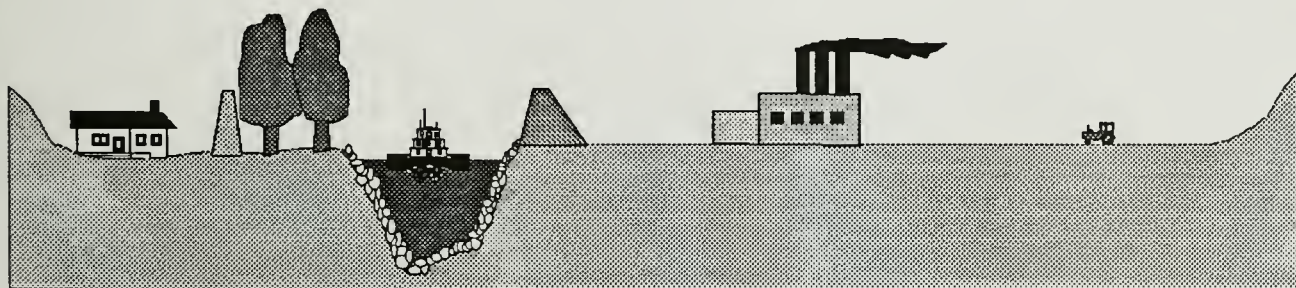
Unfortunately, everything else has been sacrificed in some river floodplains, and that is what put so many at risk during the 1993 floods. The river had no room to "breathe" and so it made room, and simply flooded those in the way.

Now that such a great disaster has reminded us all that the River is still in charge, despite our great efforts to control it, each floodplain activity or operation should be evaluated on a case by case basis through some form of "compatibility test".

Without a doubt, such a test would show that some operations would be best conducted elsewhere, leaving space for the "critters", room for the river to "breathe", and society with a lot smaller disaster recovery bill.

Second Wetlands Reserve Sign-up Draws Record Response

Farmers and ranchers in 20 states offered 590,020 acres for enrollment in the Department of Agriculture's



Wetlands Reserve Program, nearly eight times the FY 1994 goal of 75,000 acres. Under the program, USDA pays landowners easement costs for acreage accepted in the program and provides financial assistance of not more than 75 percent of costs for approved wetlands restoration work. The pilot



program in June 1992 was open to 9 states, with a goal to enroll 50,000 acres of wetlands. No enrollments were offered in 1993.

The USDA's Soil Conservation Service and the U.S. Fish and Wildlife Service will prepare preliminary wetland restoration plans for proposed properties. Offers were to be extended to landowners by May 31.

Source: Land Letter, May 1, 1994, Vol. 13, No. 13.

New Emergency Wetlands Reserve Program Begins

Landowners in the eight midwestern states affected by last summer's floods will also be eligible for a second Emergency Wetlands Reserve Program sign-up. The Soil



Conservation Service will purchase easements to return cropland to wetlands to provide for natural floodplain protection, improved water quality and wildlife habitat. The first Emergency Wetlands Reserve Program sign-up returned 25,000 acres to wetlands in the Midwest. The second sign-up began April 1 and will conclude December 30.

Source: Land Letter, May 1, 1994, Vol. 13, No. 13

Urban River Restoration Bill

Eleanor Holmes Norton (D-DC) introduced the Urban Watershed Restoration Act of 1994 on February 22, the first such bill in U.S. history. The legislation, written as an amendment to the Clean Water Act, directs the Environmental Protection Agency (EPA) to dispense small grants to qualified grassroots groups to restore local streams and rivers across the country. The money will be allocated from existing funds in EPA programs addressing non-point source pollution.

- EPA must dedicate at least 25 percent of funds annually appropriated to the Clean Water Act non-point source authority to urban river restoration projects. Grants are capped at \$500,000 to increase the number of grants that can be made.

- EPA will use ecological objectives as well as economic and community goals as criteria for making grants.

The Clinton Administration, while not endorsing the Norton measure, has promoted urban restoration in its recently released "green book," which includes its recommendations to Congress on Clean Water Act reauthorization. In addition the Senate Environment and Public Works Committee included provisions to bolster urban restoration efforts during its consideration of the reauthorization.

Source: American Rivers, Vol XXII, No. 1, Spring 199

Furse Introduces Stream Restoration Bill

Oregon Congresswoman Elizabeth Furse introduced her Waterways Restoration Bill on April 21 at a pre-Earth Day news conference. Furse's bill would give grants to local communities to restore their rivers and streams, create jobs in environmental restoration for at-risk youth, as well as create family-wage jobs – all without requiring any new funding.

Furse said this national legislation is designed to help restore areas that have been polluted by urban runoff,... as well as restore critical fish and wildlife habitat. "Waterways restoration is a cost-effective way to provide flood and pollution control, while ensuring habitat for fish and wildlife, and recreation opportunities for citizens", Furse said. She added that the bill is about environmental justice. "The federal government has historically overlooked low income and minority communities in awarding funding for watershed projects. My bill gives priority to projects in those areas."

"Local groups and agencies are responsible for proposing and designing a restoration plan that works for them, and then local residents do the work," Furse said. "As many as 10,000 jobs could be created with this bill." No new funds are needed for this legislation, rather 20% of the Soil Conservation Services existing Watershed Protection and Flood Prevention Program budget will be redirected for waterways restoration. Based on last year's figures, 20% would equal \$35 million.

Joining in the news conference was Oregon Rep. Ron Wyden, Maitland Sharpe, Izaak Walton League of America; Judy Noritake, Pacific Rivers Council; Elbert Jenkins, Minority Environmental Assn; and Kathleen Selz, National Assn. of Service & Conservation Corps.

The bill will be referred to the Merchant Marine & Fisheries and Agriculture Committees.

House Public Works Clean Water Bill Draws Fire

The House Public Works Committee scheduled two hearings in late May on Clean Water Act reauthorization, after Chairman Norman Mineta's (D-CA) latest draft reauthorization bill failed to win the support of conservative committee members and angered environmental and industry groups. Introduced April 21 by Mineta and ranking Republican Sherwood Boehlert (R-NY), the bill contains new wetlands, runoff, mining and water quality provisions that would significantly alter the nation's principal water quality protection law.

Despite the bill's bipartisan introduction, many Republicans and a number of conservative Democrats are opposed to it. For the first time in this debate, committee Republicans have offered their own comprehensive reauthorization bill, which they are expected to propose as a substitute during the yet unscheduled mark-up. But the bill also is supported by a number of Democrats on the committee.

While the Republican bill is based on H.R. 3948, its wetlands provisions were lifted straight out of Rep. Jimmy Hayes (D-LA) industry-supported H.R. 1330, and it includes language developed by state and local governments seeking more control over the administration and enforcement of clean water regulations. The bill also includes a provision on "adequately funded mandates" that requires EPA to analyze the costs of complying with its regulations and the availability of federal and other funding sources. If estimated federal funding is less than 90 percent of estimated costs, EPA must report to Congress on the reasons for and consequences of such a shortfall.

Mineta told environmentalists last month that he didn't have the votes to get a strong environmental bill through his committee. The resulting Mineta compromise, aimed at picking up conservative Democrat and Republican support, upset both

environmentalists and industry. The bill proposes "a sliding scale ranking scheme" by weakening the requirement to avoid damage to wetlands if they are deemed to have low value, said Clark Williams of the National Audubon Society. It authorizes general permits for categories of waters such as Nationwide Permit 26, which has allowed the destruction of thousands of isolated and headwaters wetlands, he said. Environmentalists also oppose its one-sided administrative appeals process and new exemptions for cranberry farming and other agricultural activities. Another provision would allow state and local governments to develop wetlands conservation plans to which the Corps of Engineers would be required to defer, Williams said.

Despite the environmental groups' opposition, industry groups aren't lining up to support the bill either. They are calling for a streamlined section 404 permitting process, a stricter definition of wetlands, additional agricultural exemptions, looser restrictions on mitigation banking, special exemptions for Alaska, and a greater role for state and local governments.

Mineta's bill also contains provisions that borrow heavily from H.R. 322, the House-passed mining law reform bill. Under the bill, no mining permits could be issued for operations that contaminate groundwater at any levels exceeding naturally occurring contaminant levels. The American Mining Congress (AMC) said H.R. 3948 would effectively ban exploration and mining of metallic minerals in the United States.

The Mineta bill has angered so many interests, it is viewed by many as a political blunder. The full Senate is expected to act on a clean water reauthorization bill the week of June 6. The Senate Environment Committee approved the bill, now numbered S. 2093, in February.

Source: Land Letter, May 20, 1994, Vol. 13, No. 15

Takings Amendment Attached To Drinking Water Bill

The Senate voted overwhelmingly May 19 to reauthorize the Safe Drinking Water Act after tacking on a controversial "takings" amendment. The Senate adopted, without a roll call vote, a scaled-back version of Minority Leader Bob Dole's (R-KS) takings amendment that is an outgrowth of a 1988 executive order signed by President Reagan. The order requires federal agencies to conduct takings impact assessments when the federal government undertakes proposed actions regulating private property.

The approved amendment requires most federal agencies to "complete a private property takings impact analysis before issuing or promulgating any policy, regulation, proposed legislation, or related agency action which is likely to result in a taking of private property." The original Dole amendment was modified by an amendment by Sen. Dale Bumpers (D-AR) that dropped any "diminution or use or value of private property" as a cause for doing a takings analysis. Bumpers said his modification "essentially codifies existing law" but allows for exemptions for certain military and law enforcement activities, health and safety emergencies, and planning activities. The Senate approved similar takings language twice in 1991 that was blocked by the House.

Source: Land Letter, May 20, 1994, Vol. 13, No. 15

Fish and Wildlife Service Developing Ecosystem Management Approach

An ecosystem approach to fish and wildlife conservation means protecting or restoring the function, structure, and species composition of an ecosystem, while providing for its sustainable socioeconomic use. The Fish and Wildlife Service will increase its efforts to think and act in terms of systems, relationships and processes and recognize that, in some way, all

things are connected. For example, there is a link between midwestern cropping practices and fisheries productivity in the Gulf of Mexico—erosion and sedimentation contribute directly to riverine sediments and the process of marsh accretion which is vital to the maintenance of coastal marshes, the nursery ground for many fish species.

Biological systems are dynamic and ever changing, and the Service plans to address all species as components of the system within which they are



found. Plant and animal populations are inseparable from their environment and their relationships with each other. Humans play a pivotal role in ecosystem dynamics, and they will play an increasingly important role in sustaining ecosystem processes and health.

Effectively implementing an ecosystem approach means recognizing that the Service is just one member of a very diverse management team. The Service therefore plans to work consistently and closely in partnership with all who share responsibility for ecosystem health: other Federal agencies, States, Tribes, communities, corporate and individual landowners, and various organizations. The ecological integrity of National Wildlife Refuges depends on the actions and management practices of neighboring public and private landowners. Endangered and migratory species use lands beyond

those specifically established to provide for their conservation and management. Many Federal agencies, the States, and the private sector all have authorities, responsibilities and interests that affect the future of natural resources.

An ecosystem approach needs the full support of all the appropriate cooperators in a given area. Without strong partnerships, independent initiatives will continue to be disjointed, competitive, and ineffective. An ecosystem approach can help bring divergent interests together to seek common solutions. Addressing species' needs requires assessing habitat requirements, harvest levels, reintroduction priorities, migration patterns, and other concerns, all of which must be factored into ecosystem goal setting.

The resource needs and the solutions to be implemented will vary widely from ecosystem to ecosystem, and the Service's role will be highly variable from one ecosystem to the next—ranging from leader to catalyst to worker to minor participant. An ecosystem approach can serve to unify diverse programs towards the common goal of restoring and protecting trust resources and the ecological processes that sustain them. Through an integrated ecosystem approach, the Service, with its partners, hopes to protect and restore fish and wildlife habitats through holistic management strategies using a wide variety of tools and techniques.

Forest Service Announces Grazing Reform

The Forest Service released its proposals April 25 for rangeland management and grazing fees on national forests and grasslands in an effort to bring its policies in line with a similar reform initiative by the Bureau of Land Management (BLM). The BLM and Forest Service proposals were printed, respectively, in the March 25 and April 28 Federal Register. Comments on both the BLM and Forest Service plans are due

July 28.

The first of two separate rules proposed by the Forest Service would place greater emphasis on the stewardship of rangeland resources, clarify planning and decision making processes, provide more consistency between Forest Service and BLM regulations, and improve administration of grazing permits. The proposal also seeks to clarify the link between grazing permits and forest land management plans.

The second proposed rule would change the grazing fee system for Western states to coordinate with the BLM plan. Grazing fees would be set at \$3.96 per animal unit month (AUM) phased in over three years. An AUM is the amount of forage needed to sustain a cow and calf, one horse, or five sheep or goats for a month. The national grasslands, which currently have a different fee than the national forests, would be brought into the new system. The Agriculture and Interior departments will devise cooperatively an incentive-based grazing program that could allow a 30 percent discount in the grazing fee, depending on whether the permit holder's rangeland record meets environmental standards.

Current regulations dealing with water rights, range improvements, and standards and guidelines would remain essentially unchanged by the Forest Service plan. Rather than performing costly and time-consuming reviews of NEPA compliance for each grazing allotment, the Forest Service will establish what it calls regional planning districts. Each district plan



would be reviewable under NEPA, but individual allotments would not.

The move comes at a time when environmental groups are seeking injunctive relief to block grazing activities on a number of Forest Service lands. Early reports of the reform plan did not explain exactly how the regional planning districts would work or whether they could result in fewer suits.

Unlike the BLM plan, the Forest Service proposals do not include the controversial grazing advisory boards that have so angered ranching communities. Designed to allow for community based management of rangelands, the BLM advisory boards have come under fire for allowing environmentalists, non-ranching interests and even non-residents to serve as members.

Source: Land Letter, May 1, 1994, Vol. 13, No. 13

Watershed Protection Techniques

The Center For Watershed Protection has launched a new publication, Watershed Protection Techniques. According to Hal Wise, Editor of Nonpoint Source, News-Notes it promises to set the standard for some time to come.

The publication is billed as "a quarterly bulletin on urban watershed restoration and protection tools," and has four sections: feature articles, an "Open Forum" on a selected subject, lots of Technical Notes—the "heart" of the publication—and, finally, a resource section, which describes current books, journals, workshops, and courses.

The Editor is Tom Schueler who was long associated with the Metropolitan Washington Council of Governments and is the principal author of their highly acclaimed Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs. The Publisher is Harvey Olem, Ph.D., P.E., president of the Center for

Watershed Protection and formerly president of the Terrene Institute.

Single issues are priced at \$14. Subscriptions per year (4 issues) are individuals, \$34; students, \$18; and organizations, \$54. Subscription orders should be sent to Watershed Protection Techniques, Suite 205, 1020 Elden Street, Herndon, VA 22070.

Source: Nonpoint Source News-Notes, March/April 1994, #35

Greenway Benefits Bottom Line

Would you invest in a business whose customer base, for a decade, has grown 62% per year and whose current revenues exceed expenditures by 58%? Such a "business" is Maryland's North Central Rail Trail (NCRT), a 20-mile corridor through Baltimore County.

Analysis of the benefits of the NCRT by the Maryland Greenways Commission showed:

- Use of the trail increased from 10,000 visitors in 1984 to 450,000 in 1993.
- Tax revenues related to NCRT in 1993 exceeded state expenditures for administration and management, \$303,750 to \$191,893.
- NCRT supports about 264 jobs statewide, and goods purchased in 1993 for uses related to NCRT were valued at over \$3.38 million.

In a poll of trail users the Greenways Commission found that over 98% of respondents felt safe when using the trail, 66% preferred greenways to traditional parks, and over 95% felt the trail was an asset to the community. Nearly two-thirds of respondents said they felt the trail enhanced nearby property values. Economic benefits of the greenway don't stop with recreationally oriented uses. MCI Communications has offered the state \$200,000 for a non-exclusive, perpetual right to use 7.6 miles of the corridor for fiber-optics routing.

For a full report, contact the Maryland Greenways Commission at (410)

974-3589.

Source: Common Ground Vol. 5, No. 4, May/June 1994

Pulliam Named to Head NBS

Interior Secretary Bruce Babbitt announced on May 2 the appointment of Dr. H. Ronald Pulliam, a University of Georgia professor, as Director of the National Biological Survey (NBS).

Pulliam, 48, has been serving as Director and Professor of the Institute of Ecology at the University of Georgia, in Athens. Prior to that (1984), Pulliam served as an Associate Professor in the University of Georgia's Department of Zoology.

Pulliam has written and published several books, and is a member of numerous professional organizations and advisory boards, including serving as president (1991-92) and vice president (1986-87) of the Ecological Society of America. He also served as president of the Southeastern University Research Association (1990-91)

A native of Miami Beach, Florida, Pulliam received his formal training at the University of Georgia (B.S., 1968), Duke University (Ph.D. 1970), and postdoctoral studies at the University of Chicago (1970-71).

Freshwater Species Most Endangered

The threat of extinction hangs over the heads of a far greater proportion of America's freshwater fish and shellfish populations than of its birds and mammals, according to a May 2 report by the Environmental Defense Fund. "The Big Kill: Declining Biodiversity in America's Lakes and Rivers," describes a dramatic decline among fish, shellfish and other aquatic organisms resulting from dams, levees, municipal and industrial pollution, overharvest, and introduction of non-native species. Ten case studies outline the potential for creative solutions to problems

affecting aquatic biodiversity.

Copies of the 275-page report are available for \$20 from the Environmental Defense Fund, 1875 Connecticut Avenue, NW, Washington, DC, 20009.

Source: Land Letter, May 20, 1994, Vol. 13, No. 13

Topeka Shiner Update

Recent information on the Topeka shiner (*Notropis topeka*) indicates that this species may be more threatened than previously believed. The species is presently restricted to a few localities in Missouri, Kansas, Minnesota, and possibly Iowa.

In the last Annual Notice of Review under the Endangered Species Act, the U.S. Fish & Wildlife Service (Service) recommended elevating the candidate status of the shiner from C-2 to C-1 and listing it as an endangered species. Status of that recommendation is not known.

Meanwhile, Vernon Tabor of the Service's Manhattan Field Office (Kansas) and Paul McKenzie of the Columbia, Missouri Field Office recently conducted Topeka shiner surveys in southeastern and northwestern Iowa, where the fish had been reported within the last 20 years. Not only did Tabor and McKenzie not find the species, but some sites are now impounded (southeastern Iowa) or are completely degraded due to deposition of silt up to 3.5 ft. deep.

Tabor also surveyed sites in the Middle Creek watershed of Kansas, near the historical center of abundance, and where approximately 5 extant sites existed a few years ago, and was unsuccessful in locating a single specimen!

Recent surveys in Missouri (1992) indicate that the species has also exhibited significant declines there. Dr. William Pflieger (Missouri Department of Conservation, pers. comm. June 1994) believes that the Topeka shiner may be declining for

reasons other than habitat alteration. Pflieger hypothesized that the Topeka shiners may be competitively excluded from certain areas (e.g., Perche Creek in Boone County, MO where the shiner has disappeared) by the Blackstripe topminnow (*Fundulus notatus*), which is now found in areas where it did not formerly occur.

Interestingly, Tabor's surveys in the Middle Creek watershed in Kansas, also included the blackstripe topminnow in areas where the Topeka shiner was absent. For whatever reason, this fish has drastically declined, and immediate measures are needed to reverse the downward trend.

On another front, the Manhattan, Kansas Field Office recently issued the U.S. Army Corps of Engineers (USACE) a jeopardy biological opinion on the Neosho madtom (*Noturus placidus*) regarding cumulative impacts of several PL 566 (impoundment) projects within the Neosho and Cottonwood River watersheds. The USACE concluded that the construction of 157 projects would "not reduce flows enough on the mainstem rivers to have an affect on the madtom's suspected reproductive requirements" and that the "physical control of the watersheds cumulatively is insignificant when compared to the drainage area of the entire basin." Based on these statements, one has to wonder why the "flood control" project is then being built!

The USACE further concluded "that issuance of the requested permits in both the Cottonwood and Upper Neosho River Basins would not individually or cumulatively result in any adverse impacts to the Neosho Madtom, or its habitat." The USACE responded (letter dated May 18, 1994 from Colonel Richard Goring of USACE to the Manhattan, Kansas Field Office) by disagreeing with the Service's "jeopardy" conclusions, and therefore apparently refusing to implement Service recommendations. This could place the USACE in violation of Section 9 of the Endangered Species Act. The

USFWS is in the process of drafting an answer to the USACE correspondence.

Interestingly, the Topeka shiner will probably be more impacted by the PL 566 dam construction projects than the Neosho madtom.

Biodiversity Protection and Southern Appalachia

Continued subsidized logging and road-building in national forests in Southern Appalachia and the lack of region-wide land management planning threaten to erode biodiversity in the region, according to a recent Wilderness Society report. Although national forests and parks comprise only 16 percent of the 24 million-acre region, they offer the best hope for conserving biodiversity, the report says. "Sustaining Biodiversity in the Southern Appalachians" is the fourth of the Living Landscape reports produced by the Society. It is available for a nominal charge from The Wilderness Society, 900 17th Street, NW, Washington, DC, 20006-2596 or by calling 202/833-2300.

Source: Land Letter, May 20, 1994, Vol. 13, No. 13

Agricultural Runoff Examined

A new report by Trout Unlimited, the Rodale Institute, and the National Academy of Sciences entitled, "The Invisible Menace: Agricultural Polluted Runoff in Our Nation's Streams," focuses on the impact of polluted agricultural runoff on aquatic ecosystems and discusses alternative farming practices. Copies are available from: Trout Unlimited, 1500 Wilson Blvd., Suite 310, Arlington, VA, 22209-2310.

Source: Land Letter, May 20, 1994, Vol. 13, No. 13



June 26-29: "Effects of Human-Induced Changes on Hydrologic Systems", Jackson Hole, WY. Contact: David L. Naftz, General Chairperson, U.S. Geological Survey, 1745 West 1700 South, Rm. 1016, Admin. Bldg., Salt Lake City, UT 84104. (801) 975-3389.

July 12-15, International Large Rivers Conference - Sustaining the Ecological Integrity of Large Floodplain Rivers: Application of Ecological Knowledge to River Management, La Crosse, WI. Contact: Ken Lubinski, National Biological Survey, Environmental Management Technical Center, Onalaska, WI 54650. (608) 783-7550, Ext. 61.

July 18-19, Applying Ecological Integrity to the Management of the Upper Mississippi River System, La Crosse, WI. Contact: Ken Lubinski, National Biological Survey, Environmental Management Technical Center, Onalaska, WI 54650. (608) 783-7550, Ext. 61.

August 3-6: Sixth International Symposium On Regulated Streams (SISORS II). The University of South Bohemia, Ceske Budejovice, Czech Republic. SISORS II is the

sixth in an on-going series of International Symposia devoted to scientific research of rivers modified by large dams, weirs, channelization and flow diversion schemes. Contact: Professor G.E. Petts, Department of Geography, University of Technology, Loughborough, Leicestershire, LE11 3TU, UK. (Fax: 509 262192), or Dr. K. Prach, Faculty of Biological Sciences, Jihoceska Univerzita, Branisovska 31, 37005, CESKE BUDEJOVICE, Czech Republic. (Fax: 038 45985).

August 7-10: "Agroforestry and Sustainable Systems Symposium", Fort Collins, CO. Contact: Kim Isaacson, USDA Forest Service, Rocky Mountain Research Station, Center for Semiarid Agroforestry, East Campus-UNL, Lincoln, NE 68583-0822. (402) 437-5178 ext. 13. FAX: 437-5712. Focus: how trees, integrated into sustainable agricultural land-use systems in the semiarid west, will enhance agricultural productivity, natural resource conservation, and natural and human environments.

August 7-12: "Stormwater NPDES Related Monitoring Needs", Crested Butte, CO. Contact: Barbara Hickernell, Environmental Foundation, 345 East 47th Street, New York, NY

10017. (212) 705-7837. FAX: 705-7441. Cosponsored by ASCE Urban Water Resources Research Council American Public Works Association, U.S. EPA, and USGS.

August 21-25: 124th American Fisheries Society Annual Meeting, "Managing Now for the 21st Century: Food, Recreation, Diversity." Sheraton Hotel and World Trade Centre, Halifax, Nova Scotia. Contact Paul Brouha, AFS, 5410 Grosvenor Lane, Suite 110, Bethesda, MD 20814-2199, (301) 897-8616, Fax (301) 897-8096.

November 14-16: Watershed WISE: A Workshop on Watershed Ecology. Grand Junction Hilton, Grand Junction, CO. The workshop is designed to encourage and support practical and effective approaches to watershed stewardship, and to share experiences and exchange ideas, tools, technology, philosophy and values useful to Watershed initiatives. Contact: Thorne Ecological Institute, 5398 Manhattan Circle, Suite 120, Boulder, CO 80303, (303) 499-3647, FAX (303) 499-8340



Congressional Action Pertinent to the Mississippi River Basin

Agriculture

H.R. 4416 (Peterson, D-MN) amends the Food Security Act to reauthorize the Conservation Reserve Program (CRP).

S. 1970 Senate approved on April 13 S. 1970, the Agriculture Department reorganization bill that creates a Natural Resources Conservation Service and authorizes the closure of more than 1,000 department field offices.

On April 14, a Senate Agriculture panel held a hearing on the effectiveness of federal ecosystem management.

Fish and Wildlife

H.R. 2500 (Gunderson R-WI) The House Merchant Marine fisheries management panel held a hearing April 20 on H.R. 2500, which seeks to develop a federal strategy to manage interjurisdictional fisheries in the Mississippi River Basin.

H.R. 3664 (Minge, D-MN) directs Interior Department to convey New London National Fish Hatchery production facility to the state of Minnesota (approved by House on March 21).

S. 476 (P.L. 103-232) President Clinton signed on April 11 reauthorizing the National Fish and Wildlife Foundation, authorizing the transfer of the Senacaville Fish Hatchery to the state of Ohio, and authorizing establishment of a 7,000-acre wetlands research center in Brownsville, Texas.

H.R. 4082 (Lambert, D-AR) requires the interior secretary to convey the William H. Donham State Fish Hatchery to the state of Arkansas.

Forests

H.R. 1164 House Natural Resources national parks panel held a hearing May 5 on **H.R. 1164**, the Forest Biodiversity and Clear-cutting Prohibition Act.

Land Conservation

H.R. 4213 (Richardson, D-NM) amends the Land and Water Conservation Fund Act to authorize establishment of a national registry of rivers and watersheds to be restored and protected.

Parks

S. 471 Senate Energy Committee held hearings May 5 on **S. 471**, which establishes a new area study process for proposed additions to the National Park System.

S. 1980 (Johnston, D-LA) establishes the Cane River Creole National Historic Park and the Cane River National Heritage Area in Louisiana. Senate hearings concluded on April 21.

H.R. 4333 (Skaggs, D-CO) designates 240,650 acres in the Rocky Mountain National Park as wilderness.

Public Lands

H.R. 1181 On April 28, the House Natural Resources national parks panel held a hearing on **H.R. 1181**, which increases federal payments in lieu of taxes to local governments

S. 455. On April 13, the Senate approved increasing federal payments in lieu of taxes to local governments.

H.R. 4155 (Richardson, D-NM) provides for the management of federal lands in a manner that does not undermine or frustrate traditional Native American religions or religious practices.

H.R. 4157 (Thomas, R-WY) authorizes the transfer of the lands managed by the Bureau of Land Management to the states in which they are located.

The Senate Energy Committee held a hearing April 20 to examine the Department of Interior's proposed rule to reform the livestock grazing regulations and to review **S. 1326** (Campbell, D-Co), a rancher-backed reform bill, and **S. 896** (Metzenbaum, D-OH), an environmentalist-backed reform bill.

Recreation

H.R. 4038 (Zimmer, R-NJ) directs the Fish and Wildlife Service to conduct a study of the feasibility of a national angler's license.

H.R. 4403 (Emerson, R-MO) rescinds the fee required for the use of Army Corps of Engineers public recreation areas.

Takings

S. 2006 (Dole, R-KS) requires federal agencies to conduct takings impact assessments when promulgating any agency policy, regulation, guideline or recommending legislative proposals to Congress.

Water Quality

On March 22, a House Merchant Marine panel held a hearing on pending Clean Water Act legislation.

S. 1985 (Brown, R-CO) amends the Clean Water Act to provide for the use of biological monitoring and whole effluent toxicity tests in connection with publicly owned treatment plants.

Water and Wetlands

H.R. 2199 The House Merchant Marine Committee held a hearing March 15. The bill proposes to tax fertilizer, industrial dischargers and other water pollution sources to pay for clean-up.

The House Agriculture Committee held a hearing March 23 to review the impact of wetlands and non-point

source pollution regulations on agricultural lands.

H.R. 4289 (Furse, D-OR) amends the Watershed Protection and Flood Prevention Act to establish a waterways restoration program.

H.R. 4308 (Dingell, D-MI) amends the North American Wetlands Conservation Act to authorize appropriations for allocations for wetlands conservation projects.

H.R. 4314 (Lambert, D-AR) reauthorizes the Safe Drinking Water Act.

H.R. 4347 (Smith, R-MI) amends title XII of the Food Security Act to permit the conversion of wetlands that are 1 acre or less in size.

S. 2093 (Baucus, D-MT) a synthesis of his earlier **S. 1114** and **S. 1304**, the bill amends and reauthorizes the Clean Water Act.

H.R. 4363 (Johnson, D-SD) authorizes construction of and assistance to the Lewis and Clark Rural Water System (Missouri River).

Wilderness

H.R. 2473 The House Natural Resources Committee approved the Montana wilderness bill, on March 23.

H.R. 2638 On May 4, a House Agriculture and a Merchant Marine panel held a joint hearing on **H.R. 2638**, the Northern Rockies Ecosystem Protection Act.

Source: Land Letter, April 15, 1994, Vol. 13, No. 11 and May 15, 1994, Vol. 13, No. 14



River Crossings



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