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**Upper Colorado River Fish:
A Recovery Program That Is Working--
Myth or Reality?**

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**BIODIVERSITY PROTECTION:
IMPLEMENTATION AND REFORM OF THE
ENDANGERED SPECIES ACT**

Natural Resources Law Center
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School of Law
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Summary

The continuing decline of four native fish species in the Colorado River Basin lead to the prospect that consultations under Section 7 of the Endangered Species Act would effectively put an end to compact entitled water development and the operation of state water law in the Upper Colorado River Basin. In response, the states of Colorado, Utah and Wyoming, the Department of Interior, the Western Area Power Administration, and water users and environmentalists entered into an agreement designed to achieve programmatic restoration of habitat and recovery of the species, while allowing state water allocations systems and development to continue. The scope of the program is unprecedented, and offers complex legal and political challenges. The program also offers a unique opportunity to demonstrate the flexibility of the Endangered Species Act, and the emerging process of multi-party involvement in the resolution of interstate natural resource issues.

This paper discusses the history of the Upper Basin recovery program, and the major issues that have arisen, many of which are still unresolved. Some view the program as a success, based on the fact that approximately 170 favorable biological opinions have been issued, for the development of about 209,000 acre feet of water, using the program as a reasonable and prudent alternative. Others question the program's effectiveness, pointing to the fact that there has yet to be a definitive biological response from the species, and the time, cost and political and legal difficulty in implementing the program elements. Despite the fact that many complex and difficult issues remain, the program still offers the best alternative to the potential "trainwreck" inherent in the potential project-by-project issuance of jeopardy opinions on water project development and operation.

I. Overview of the Endangered Species Act as Related to this Paper.

- A. Listing. Section 4(a)(1) of the ESA requires the Secretary to list species as threatened or endangered, based on present or threatened adverse impacts to habitat or range, overutilization, disease or predation, or "other natural or manmade factors affecting its continued existence." This does not include any balancing of economic interests. See, 50 C.F.R. Sec. 424.11. A species is "endangered" if it is in danger of extinction throughout all or a significant portion of its range. Section 3(6).
- B. Critical Habitat Designation. Section 4(a)(3) requires the Secretary to designate critical habitat concurrently with listing. Critical habitat includes areas of appropriate habitat occupied by the species at the time of listing, as well as areas outside that area upon a determination by the Secretary that such areas are "essential to the conservation of the species." Section 3(5); See, 50 C.F.R. Sec. 424.12(b). Contrary to the listing process, the critical habitat designation process does require consideration of economic impact, other relevant impact, and a benefit analysis. Section 4(b)(2); See, 50 C.F.R. Sec 424.12(a), 424.19.
- C. The Conservation and Consultation Requirements.
1. Section 7 imposes the affirmative requirement on all federal agencies to "conserve" endangered species. The term "conserve" is similar to the more common term "recover," and means to use all measures necessary so that the protection afforded by the ESA is no longer necessary. Section 3(3); 50 C.F.R. 402.02. The basis for agency action is a recovery plan prepared by the Secretary which describes site-specific management actions necessary for conservation, criteria which will

result in a determination of de-listing, and time and cost estimates for implementation. Section 4(f)(1). Section 7(a)(1) directs all federal agencies to carry out conservation programs. Section 7(a)(2) requires every federal agency to insure that any action it authorizes, funds or carries out is "not likely to jeopardize" the continued existence of any listed species, or will result in the destruction or adverse modification of critical habitat.

2. Federal agencies are required to consult with the Secretary with regard to any agency action or permit, as to whether "jeopardy" will result from the proposed action or permit. Section 7(a)(3)(4). The Secretary's response is referred to as a "biological opinion." Section 7(b)(3)(A); 50 C.F.R. 402.02. If jeopardy or adverse modification is found (a jeopardy opinion), the Secretary must suggest "reasonable and prudent alternatives" that will avoid the jeopardy or adverse modification, that can be implemented by the federal agency or permittee, and which are economically and technologically feasible. Alternatively, the Secretary may determine that no reasonable and prudent alternative exists. Id.; 50 C.F.R. 402.14(h). As applied to the Colorado River Program, the Secretary has delegated this authority to the Fish and Wildlife Service.
3. Consultation can be "reinitiated" if discretionary federal involvement or control over the action has been retained or is authorized by law, and if there are changed circumstances such as the existence of new information, the modification of the identified action, or if a new species is listed. 50 C.F.R. 402.16.

D. Delisting. The ESA does not have specific provision for de-listing. Regulations specify that a species may be delisted if the best scientific evidence and commercial data available substantiate that the species is either extinct or has been recovered, or that the original data upon which the listing was based is in error. 50 C.F.R. 424.11(d).

II. A Summary of Major Events in the History of the Recovery Program.

- A. Three species of fish -- the Colorado squawfish, bonytail chub and humpback chub, were listed by the Fish and Wildlife Service as endangered shortly after enactment of the Endangered Species Act. The razorback sucker was added subsequently. The Service did not immediately prepare a recovery plan, or designate critical habitat. Historically, these fish ranged throughout the Colorado River basin, and were abundant.
- B. Water project development and operation in the Upper Colorado River Basin almost always involves a federal nexus that triggers the conservation and consultation requirements of the ESA. Many water projects are federally owned or financed. Even private water projects often occur on federal land, or require the issuance of a permit under Section 404 of the Clean Water Act.
- C. In the late 1970's the Fish and Wildlife Service took the position in consultations that nearly any depletion, no matter how small, constituted "jeopardy." Despite scientific uncertainty as to the role or importance of water depletions in jeopardizing the fish, the Service put the burden on project proponents or owners.
- D. In 1981, based in large part on the need for research, the Service developed the "Windy Gap" model in Section 7 consultations, which assessed every water project a per-acre foot fee, that was used to support research and conservation measures.

- E. In 1983, the Service issued recovery plans for the species, and also prepared a draft "conservation plan," which created a storm of protest from the states and water development interests. The document blamed the decline of the species on habitat modification due to water development (flow alteration, depletion, sediment trapping, temperature alteration, and habitat fragmentation) and non-native competition and predation. The report acknowledged that there was very little scientific information to support its conclusions, but stated that "...there is risk to the endangered fishes in the development of any project which will cause changes in the aquatic environment, regardless of its magnitude." (emphasis added) The conservation plan was designed to provide a coordinated approach to Section 7 consultations, rather than have the consultations occur on a case-by-case basis. The plan set forth a 15 year, \$25 million program of goals and strategies to maintain and increase populations of the fish. Most controversial were flow recommendations, at pre-1960 levels and including large flushing flows, that arguably would have prevented Compact-entitled water development in the Upper Basin, since any project that depleted flows below these levels would receive a jeopardy opinion. The prospect of "de-facto federal regulatory water rights" usurping western prior appropriation doctrines created intense concern not only in the West, but in the context of amendments to the Endangered Species and Clean Water Acts. (See, Tarlock, 1985)
- F. In response, some 25 Colorado municipalities, special districts and industries, under the auspices of the Colorado Water Congress and supported by the Colorado Department of Natural Resources, formed the Special Project on Threatened and Endangered Species. This umbrella group allowed water users to consolidate

positions and resources to seek an administrative solution to the potential "trainwreck" represented by the 1983 Conservation Plan.

- G. In August 1984, in the wake of the outcry over the draft conservation plan, the Fish and Wildlife Service, the Bureau of Reclamation and the states of Colorado, Utah and Wyoming executed a Memorandum of Understanding, that formed the basis for what is now the Recovery Implementation Program. The stated purpose of the Agreement was to allow the Fish and Wildlife Service to utilize a program of reasonable and prudent alternatives in the issuance of biological opinions under Section 7 for water project development and depletions, while recognizing state water laws and compact apportionments. At the same time, Congress appropriated \$450,000 for the Department of Interior to participate in the MOU, and directed the Secretary to implement any plan adopted. H.R. 5973, 98th Cong., 2d Sess., August 8, 1984.
- H. Negotiations toward the development of the recovery program were complicated by negotiations over the biological opinion by the Fish and Wildlife Service on a proposed water marketing program by the Bureau of Reclamation from Ruedi and Green Mountain Reservoirs in Western Colorado. This issue related to the Bureau's affirmative obligations under Section 7(a)(1) to utilize authorities to conserve listed species, and the affirmative obligation on the Secretary to implement recovery plans under Section 4(f). The Service took the position that depletion impacts of the water sales would adversely impact the listed fish and their habitat on the Colorado River near Grand Junction, in what is commonly known as the "15 mile reach" (The 15 miles of river from the confluence with the Gunnison River upstream to the major diversion structures providing irrigation water to the Grand Valley). The draft biological opinion took the

position that it would be necessary to withhold water from water sales in order to avoid jeopardy. This opinion brought into issue Section 7(b)(3)(A) of the ESA, which limits the ability of the Service to propose reasonable and prudent alternatives that "can be taken by the Federal agency." Since Ruedi and Green Mountain Reservoirs were authorized and constructed prior to the ESA, for water deliveries and incidental fish and wildlife benefit at the reservoirs, and since repayment obligations were dependent on water sales, water users questioned the Bureau's authority to withhold water from sale, and deliver it for a purpose not contemplated in the authorizing legislation. After extensive negotiations, the Service issued an opinion that provided for the release of water from Ruedi Reservoir and the delivery of the water to the 15 mile reach under state law through the state's instream flow program, under a lease that was subject to future water sales. This provided the needed water in a way that avoided a confrontation over all of these potential issues.

- I. In 1986, the Fish and Wildlife Service published a notice of intent to prepare an environmental assessment of a proposed action to recover rare and endangered fish in the Upper Colorado River Basin. The document is significant, because in undertaking NEPA compliance for establishment of the recovery program, the Service described alternatives to a recovery program, including the "no action" alternative, under which individual project-by-project Section 7 consultations would be undertaken. Structure modification, flow provision, and/or cash funds were identified as possible alternatives to avoid jeopardy.
- J. After three years of negotiation and public comment, the Fish and Wildlife Service published the Recovery Implementation Program (RIP) in 1987. The basic concept

of the RIP is to establish a comprehensive and systematic approach to achieve the goal of recovery, and serve as a reasonable and prudent alternative to water project development in the Upper Basin. The Program contains the following elements:

1. Institutional Arrangements. A Recovery Implementation Committee is established, made up of representatives of federal agencies, the states, water development interests, and environmental interests. The RIP makes clear, however, that the Fish and Wildlife Service retains ultimate jurisdictional authority for implementation of the ESA. Despite this fact, the RIP created a new model of "consensus decisionmaking" under the ESA, and a much greater role for states, permittees and the environmental community in planning and implementation.
2. Recovery Elements. The RIP establishes five principal elements:
 - a. Habitat Management (flows). This element involves:
 - (1) determining flow requirements of the fish;
 - (2) implementation of instream flows under state law; and
 - (3) identification of sources of water, including allocation and release of water from existing and new reservoirs (including the issue of reoperation of federal reservoirs such as Flaming Gorge and the Aspinall Unit), purchase or lease of water, water conservation, changes of water rights to instream flows, changing points of diversion downstream, non-

tributary water development, and original appropriations for instream flows.

- b. Habitat development and maintenance. This element involves purchasing, developing and maintaining backwaters and spawning habitat, and developing jetties and fish passage structures.
 - c. Native fish stocking.
 - d. Nonnative species management. This element involves state stocking programs, regulation of private fish culture facilities, and sportfishing regulations, to reduce competition and predation by nonnative species.
 - e. Research, monitoring and data management.
3. Funding. The program was estimated to cost \$2.3 million annually to operate, to be derived from the Department of Interior budget and the states. The bulk of operating funds come from Bureau of Reclamation hydropower revenues. The program also anticipated a total of \$15 million from Congressional appropriations for water rights acquisition and capital expenditures. A one-time \$10 per acre foot depletion charge, indexed for inflation, was also contemplated for new water project development, to help fund the program.
4. Recovery Goals. The goal of the program was broadly to provide for the recovery and delisting of the three listed fish, and to manage the razorback sucker so it would not need to be listed (the razorback was subsequently listed). Somewhat more specific goals of self sustaining populations and natural habitat were set forth for each species.

5. Section 7 Consultations. For the depletion impacts of water project development (flow reductions and corresponding changes in temperature, salinity and turbidity), the Service agreed to consider progress in obtaining, administering and protecting instream flows as offsetting such impacts. Direct impacts, such as obstructions to fish passage and alteration of physical habitat, would still be considered on a project by project basis.
6. Implementation. The RIP is implemented by a 1988 Cooperative Agreement, with a 15 year duration, signed by the Governors of Colorado, Utah and Wyoming, and the Secretary of Interior.
- K. Much discussion, debate and negotiation revolved (and revolves) around the flow element of the RIP. Specifically, how much water is required, at what times of the year, to recover the species? How will those flows be provided and protected, in accordance with state law, while allowing for full development of each state's compact entitlement? The 1983 Conservation Plan contained preliminary flow recommendations that stirred considerable controversy. Subsequent biological and institutional studies were conducted by Osmundson and Kaeding (1991), the Center for Public-Private Sector Cooperation at the University of Denver (1993), and Stanford (1994). However, there continues much debate over these questions.
- L. In 1989, the Service became concerned that there was uncertainty in the amount of flow required for recovery, and the legal processes in each state to protect the flows. Water users, meanwhile, took the position that the appropriation of \$10 million by Congress for water rights acquisition, the payment of depletion charges, and the existence of the RIP should assure them of "certainty" of non-jeopardy opinions in Section 7

consultations, particularly with regard to projects already in existence. The Service determined that for large depletions (in excess of 3000 acre feet), progress in the protection of instream flows under the RIP must be "sufficient" to offset project impacts before the issuance of a favorable biological opinion. Thus, the timing of biological opinions, and water development, could not outstrip the habitat protection activities of the RIP. The Service also required that project proponents withhold a portion of project yield until there was a "reasonable assurance" that instream flow protection will be met. The Service later tied the issue of sufficient progress to the other elements of the RIP. These issues led to the negotiation in 1993 of an Agreement on the Issues of Section 7 Consultations, Sufficient Progress and Historic Projects (the "Section 7 Agreement"), and a program of specific identified actions and timeframes anticipated to achieve recovery, based on the program elements of the RIP. This program was called the Recovery Action Plan (RIPRAP).

1. The RIPRAP outlines specific actions in each of the major subbasins of the Colorado River, within each of the five RIP program elements, and establishes timeframes and budget estimates for each action. The actions include: goals for the filing of instream flow applications by the Colorado Water Conservation Board; establishment of nonnative fish management activities; specific water management and conservation activities; habitat acquisition activities; and stocking. The total RIPRAP budget, depending on which activities are ultimately undertaken, may range from \$30 to \$100 million.
2. The Section 7 Agreement was intended to serve as a more predictable framework for implementation of the program, and for resolution of many of the

outstanding issues. The Agreement accomplishes the following:

- a. Adaptive Management. The agreement incorporates the concept of "adaptive management"--that the RIPRAP could change as a result of new information, changing priorities and water development.
- b. Reasonable and Prudent Alternative. The agreement makes explicit the connection between the RIP, the accomplishments of the activities outlined in the RIPRAP, and determinations by the Service that the RIP is a reasonable and prudent alternative to jeopardy for the depletion impacts of water project development. The agreement specifically includes historic as well as new projects. The agreement also includes impacts to critical habitat, as well as species impacts. The agreement makes the RIP participants -- not project proponents -- responsible for the program.
- c. Sufficient Progress Determinations. The Service retains "ultimate authority and responsibility" for determining whether the RIP can continue to serve as a reasonable and prudent alternative, by determining whether or not sufficient progress is being made in the accomplishment of the program's goals. The agreement sets forth criteria upon which the sufficient progress determination is made, including accomplishment of RIPRAP activities, population response, and the magnitude of project impacts. The Service will evaluate sufficient progress separately for the Green and Colorado River subbasins, with "due

consideration" of overall progress. The Service agreed to consult with the RIP participants whenever it may conclude that progress has not been sufficient. These consultations are not designed to alter the authority of the Service but to provide an opportunity to restore the functional expectation that the program will continue to serve as the reasonable and prudent alternative.

- d. Reinitiation of Consultation. The Service retains the ability to determine that the RIP no longer serves as the reasonable and prudent alternative with respect to previously issued biological opinions.
 - e. Historic Projects. Yet another issue was the effect of the RIP on non-federal water projects in existence at the commencement of the program. The Service determined that for these historic projects, the RIP offsets both the direct habitat impacts of the projects as well as the depletion impacts (except the discharge of pollutants).
- M. In 1992, in response to a lawsuit by the Sierra Club Legal Defense Fund, the Denver Federal District Court ordered the Service to designate critical habitat for the listed fish. For all four fish, the total proposed habitat encompassed the 100-year floodplain on 2,094 miles of river throughout the Colorado River Basin. The proposal created concern among all of the Program participants as to the effect of the habitat designation. The Governors of Colorado, New Mexico, Utah and Wyoming wrote to the Secretary of Interior seeking some direction from the Service, specifically that the habitat designation not impose a new layer of regulatory burden

on the states. The habitat was officially designated in 1994. The Service determined that new consultations will have to occur for the critical habitat impacts of projects.

N. One of the fundamental tenants of the RIP is the establishment of instream flows under state law in a way that allows for full development of each state's compact entitlement, while retaining the viability and enforcement of those instream flow rights as long term protection and enhancement of the habitat for the listed fish (thus avoiding the sticky issue of federal regulatory water rights). Putting this tenant into practice has proved to be enormously complex -- legally and politically. This is especially true in Colorado, where instream flow protection is necessary in the lower reaches of the Colorado and Yampa Rivers -- near the state line (at the boundaries of interstate apportionments) and below major water development projects and opportunities. Colorado's prior appropriation system is based on the premise that water users make water development decisions based on economic and market considerations. Thus, the state is not willing (and constitutionally and statutorily unable) to make those decisions. Development flexibility is necessary. Two processes were developed by Colorado and the Service to attempt to move forward.

1. Enforcement Agreement. In 1993 the Service and the Colorado Water Conservation Board entered into an agreement to guide appropriation and enforcement of instream flow water rights under the RIP. In order to assure the Service that state instream flow appropriations will be meaningful, the CWCB obligated itself to seek administration of, to protect through the filing of statements of opposition, and to not abandon, its RIP instream

flow filings. In order to assure the state that the filings will not unreasonably impair compact entitled development, the Service agreed that the CWCB could modify its filings in given circumstances.

2. Compact Development Projections. In order to provide a foundation upon which the CWCB could make its instream flow filings, it initiated a task group to make projections of potential compact development opportunities in each of the major subbasins in Colorado. Although nonbinding, these projections at least give some rational basis for the CWCB filings.

Based on these processes, and extensive debate and public hearing, the CWCB filed in Colorado water courts in December 1995 for RIP instream flow appropriations in the lower reaches of the Colorado and Yampa Rivers. The proposed water rights have "base flow," "carve out," "modifiable," and "non-modifiable" elements. Nearly 50 statements of opposition were filed to each application. Needless to say, some criticize the filings as not enough protection for the listed species. Others criticize the filings as encroaching unreasonably on Colorado's remaining Compact development opportunities.

0. The RIP is involved in efforts to implement all five of the program elements, and the specifically identified actions in the RIPRAP. The most recent status report of the Program (April 12, 1996) outlines the following activities: Construction of a fish ladder at the Redlands Diversion Dam, floodplain restoration, 15-mile reach flow protection, Flaming Gorge Dam operations, Yampa River Basin water issues, Gunnison River Basin water issues, Grand Valley water management, Ruedi Reservoir water contract, propagation facilities for endangered fish, non-native fish stocking procedures,

non-native fish control on the Gunnison River, non-native fish management in the Green River, experimental removal of northern pike from the Yampa River, and long-term funding and legislation.

P. Despite these efforts, the Regional Director of the Service, in the most recent determination of sufficient progress for the program on April 5, 1996, indicated concern as to whether the RIP could make the kind of progress necessary to continue to serve as the reasonable and prudent alternative envisioned in the original program documents. The Regional Director indicated:

1. Through FY 1995, the Service has issued biological opinions under the RIP for project depletions totalling 209,000 acre feet of water.
2. The status of the species is mixed. Reproduction of razorback sucker in the Yampa/Green Rivers was documented, but only limited recruitment into the population has followed. There are preliminary indications that Colorado squawfish are becoming more abundant in the Green River. Development of refugia populations of razorback suckers, Colorado squawfish and humpback chub are progressing, but still some years from accomplishment.
3. There are several RIPRAP items that are falling behind schedule, and which present difficult issues. Of the 18 high priority items, 7 are behind schedule, including progress on non-native fish conflict and actions to provide flows in the 15-mile reach (and how those flow needs can be met in the future).
4. The RIP has made sufficient progress with regard to individual project depletions of less than 1500 acre feet per year, as opposed to 3000 acre feet which has previously been determined. The determination lists those items that should be

accomplished in order for the 3000 acre feet threshold to be reinstated. The Regional Director expressed commitment to the Program, but stated: "[T]his action indicates that we need to exercise greater caution in allowing depletions to proceed that may foreclose future recovery options and, thus, sufficient progress."

III. The Myths and Realities -- Issues Still to be Determined.

- A. Can the RIP work? The Service has issued biological opinions for 209,000 acre feet of depletions. That certainly is success from a water development perspective. Yet some argue there is little evidence that the species are better off, and that the Program is stalling on the really difficult implementation issues.
- B. Who pays, and how much? The original program contemplated recovery with a total expenditure of \$15 million. Total expenditures to date have been about \$45 million. Current estimates for the program capital costs range from \$30 to 100 million, with administration costs of \$2.5 million per year. There is no agreement among the program participants as to how this funding will be achieved. With the federal budget deficit, prospects for future funding by the federal government may be questionable.
- C. What is "recovery?" Even though the program is scheduled to end in 2003, some argue that the program has no specific definition of when it will end, i.e. when recovery is achieved. Nearly everyone involved with the program would acknowledge that the species will not be recovered by that date. Thus, the program will be a self-perpetuating bureaucratic program. However, because of the adaptive nature of the program, and the lack of information on the species, such a definition may be impossible. Part of the problem relates to the legal uncertainty surrounding the delisting process. One

interpretation of delisting criteria is the listing criteria in reverse -- that there is a stable or increasing population, that habitat protection is in place, and that there is assurance that the factors that caused the decline in the first place have been reversed or eliminated.

- D. Will there ever be "certainty" for permittees? In order to make the investments of funds necessary to implement the program, permittees argue they must have regulatory certainty. Others argue that the issue of "certainty" ultimately must be resolved in favor of the listed species under the ESA -- that the risk of program failure must be borne by the permittees, not the species.
- E. What should be the relative emphasis on the program elements, particularly flows and nonnative stocking regulations? One of the benefits of the program is the multiple program elements, implementing a variety of strategies for recovery. However, water users argue that the flow element hits them disproportionately, and jeopardizes the program goal of recovery under full compact development. Nonnative stocking regulations will be controversial for anglers, and difficult to implement.
- F. How does the concept of "concurrency" apply? One of the program criteria for sufficient progress is the implementation of recovery measures concurrently with biological opinions allowing more depletions. There continues debate over the right balance between the pace of new depletions vis-a-vis the pace of implementation of recovery measures. Moreover, there is the issue of where recovery activities should occur, and where (or if) development should be limited.
- G. Assuming the program is successful in the Upper Basin, can the species be delisted in the Upper Basin? The Service designated critical habitat for the species in the Lower Colorado River Basin. Given that the Lower

Basin is part of the species' historic range, some may argue that Upper Basin populations are not "distinct," and thus unable to be independently delisted.

- H. The ESA and regulations that establish requirements for reasonable and prudent alternatives are predicated on the establishment of measures that avoid "jeopardy" and the adverse modification of critical habitat. On the other hand, recovery programs are designed to go much further - - not merely to offset impact, but to restore habitat and species populations. How should these disparate standards be related in the Section 7 and regulatory permitting context? If progress toward "recovery" is slow, but the program still is operating effectively to avoid jeopardy, would the Service be justified in finding no sufficient progress, and denying further development?
- I. If the RIP succeeds in implementing the actions identified in the RIPRAP, but the species populations do not respond as expected, who should bear the consequences? What if the participants continue to support implementation of the identified recovery actions, but Congress refuses to appropriate its share of the recovery funds -- who should bear the consequences of falling behind in the schedule established in the RIPRAP? Water development or the species?

Conclusion

Despite the many questions still remaining as to whether the RIP can operate as it was designed, there remains a commitment among the program participants to "see it through." This is because, the motivation at the commencement of the program remains -- avoiding the confrontation, litigation and misallocation of resources inherent in the "no action" alternative. There is much at stake in making sure the program, as a model for a collaborative basinwide habitat and species restoration concurrent with additional development under state law, can work.

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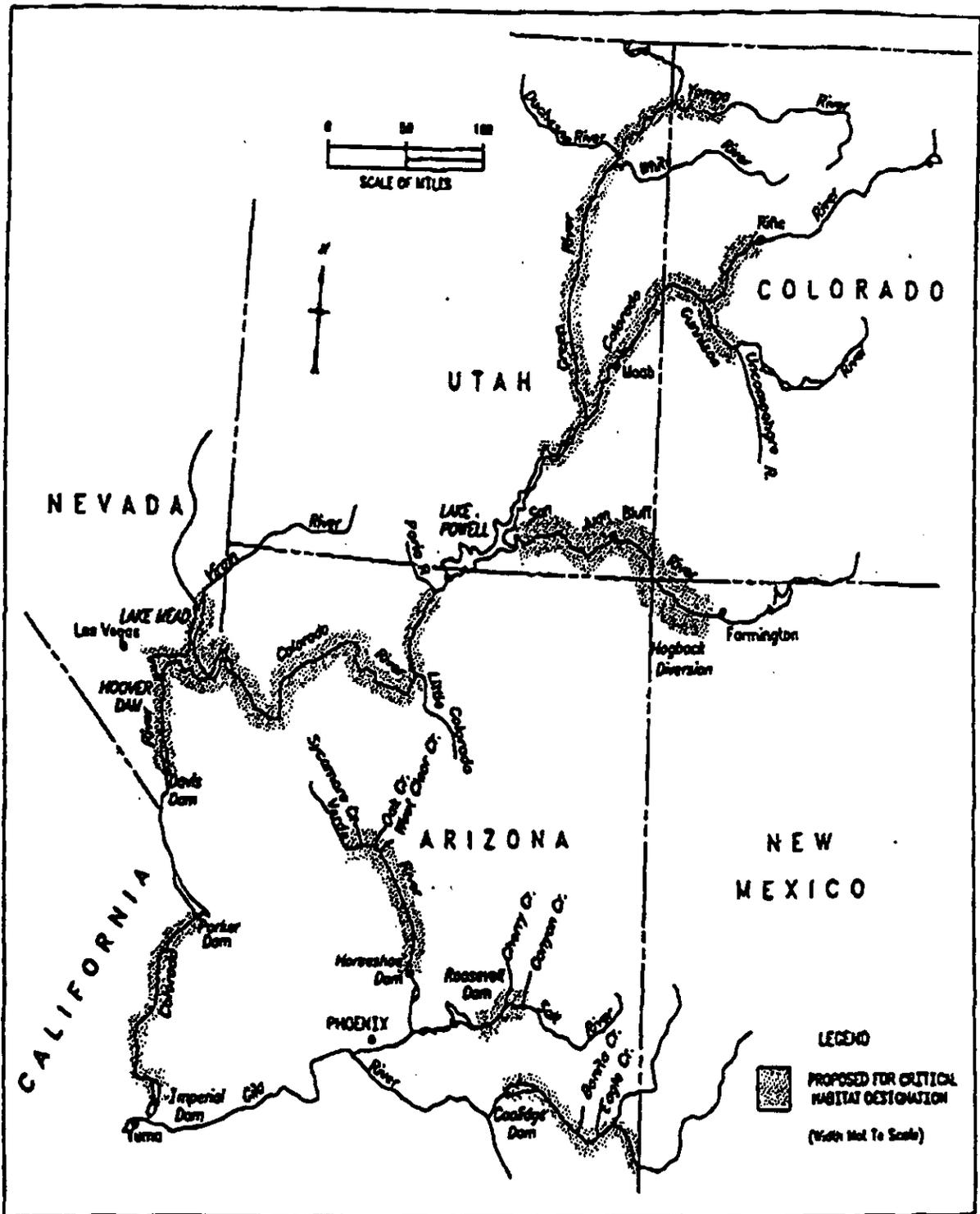


Figure 1: Map of the Colorado River and major tributaries showing habitat fragmentation and flow alteration by dams.