

PROGRESS REPORT
on the
MIDDLE RIO GRANDE
ENDANGERED SPECIES ACT
COLLABORATIVE PROGRAM
for 2001 through 2003

November 15, 2003

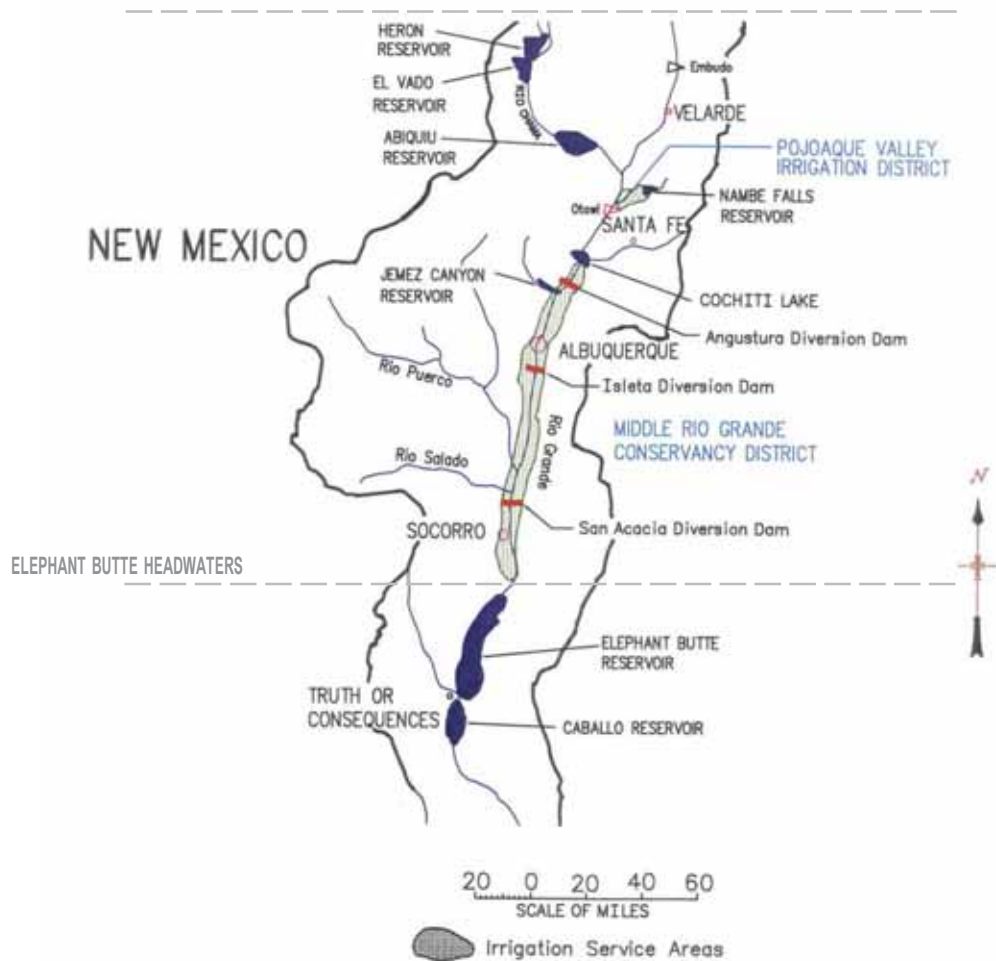
Prepared by
Middle Rio Grande ESA Workgroup

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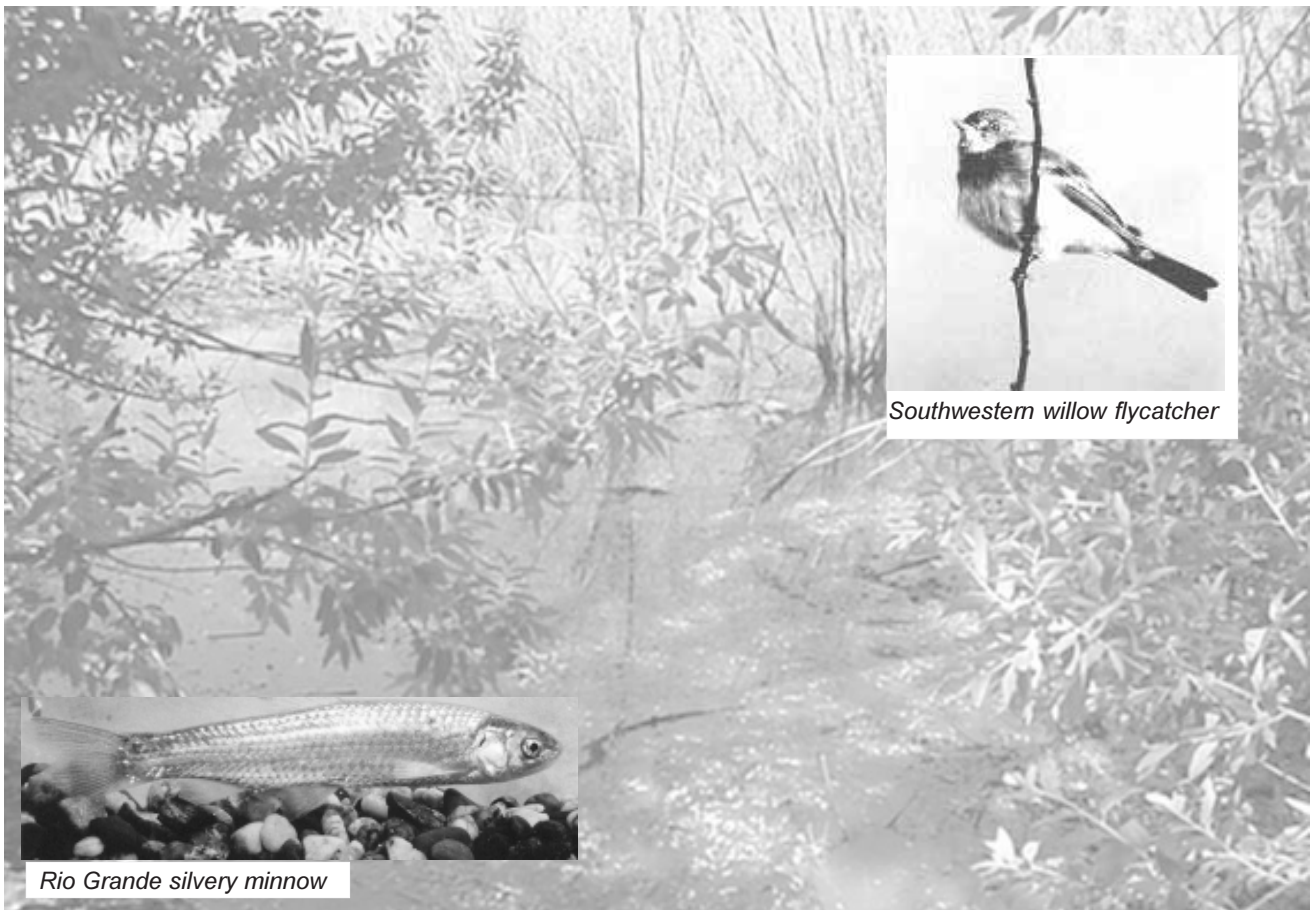
COLORADO



Area Covered by
 Middle Rio Grande Collaborative Program
 From Colorado/New Mexico State Line to
 Headwaters of Elephant Butte Reservoir.
 Indian Pueblo and Tribal lands and resources
 within the Collaborative Program area are not
 included in activities under the
 Collaborative Program without the
 Pueblo or Tribe's express written consent.

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EXECUTIVE SUMMARY

The Middle Rio Grande Endangered Species Act Workgroup (ESA Workgroup) was formed in 2000 with the purpose of developing the Middle Rio Grande Endangered Species Act Collaborative Program (Collaborative Program). The ESA Workgroup is comprised of multiple federal, state, and local agencies and private organizations. This Progress Report presents the accomplishments of the ESA Workgroup through October 2003. Three years of funding projects in habitat restoration, scientific research, population management, and water management have greatly advanced the goals of contributing to the protection and recovery of the Rio Grande silvery minnow and the southwestern willow flycatcher while at the same time protecting current and future water uses.

This report describes the Collaborative Program's organization, goals, accomplishments, and long-term plans. One of its major accomplishments has been to unite diverse

public and private participants, in the face of ongoing litigation and extended drought conditions, to work towards the recovery of the endangered species of the Middle Rio Grande while meeting the region's other water needs in compliance with New Mexico and federal law.

The accomplishments of the ESA Workgroup since 2001 include establishing a well-functioning organization that provides management and technical oversight of numerous projects. These projects have included restoration and creation of habitat for the endangered species in Los Lunas and several Pueblos, population augmentation and management, contributions to the design and construction of a silvery minnow refugium, saltcedar management, short-term water acquisition to meet the river-flow targets of the U.S. Fish and Wildlife Service's Biological Opinion, pumping supplemental water for silvery minnow and flycatcher habitat and performing research to better understand the needs of the listed species.

BACKGROUND

In 1994, the Rio Grande silvery minnow was listed as an endangered species under the Endangered Species Act, 16 U.S.C. §§1531-1544 (ESA); the southwestern willow flycatcher was listed in 1995. Drought conditions in 1996 exacerbated the already stressed conditions on the Rio Grande. Conflicts arose that led not only to litigation but also to the formation of a series of work groups composed of government, environmental, business, and private entities with the ambition of working collaboratively to achieve long-term solutions for the Middle Rio Grande.

Litigation ensued with *Minnow v. Martinez*, presently *Rio Grande Silvery Minnow v. Keys*, filed in 1999. In 2002 an aspect of the case

regarding San-Juan Chama Project (SJCP), was decided in favor of the plaintiffs; this decision was affirmed on appeal to the 10th Circuit Court of Appeals in June 2003. Despite the ongoing litigation, collaboration between all of the interested stakeholders has continued with support from Congress and has been lauded by many as the most realistic option with the best potential for achieving protection and recovery of the endangered species while protecting the existing and future water uses on the Middle Rio Grande.

The affected and interested local, state, and federal agencies; environmental organizations; Tribes and Pueblos; agricultural interests; and business associations, in recognition of the potential conflicts between recovery efforts for endan-

gered species and existing and future water uses in the Middle Rio Grande, formally created the “ESA Workgroup” in 2000 to resolve any such conflicts in a collaborative effort. Members of this group signed a Memorandum of Understanding (MOU) stating their intent to develop the “Middle Rio Grande Endangered Species Act Collaborative Program” (Collaborative Program). A second MOU was signed in 2002 that established an Interim Steering Committee and reaffirmed the signatories’ commitment to the Collaborative Program. Prior to the formal establishment of the Collaborative Program, a Program Document must be finalized and the National Environmental Policy Act (NEPA) process implemented.

The ESA Workgroup seeks to use the best available scientific knowledge to create an economically viable and practical approach to preventing extinction, preserving the reproductive integrity, improving the habitat, and promoting the recovery of the Rio Grande silvery minnow in the Middle Rio Grande. This approach would also benefit the protection and recovery of other protected species, including the southwestern willow flycatcher.

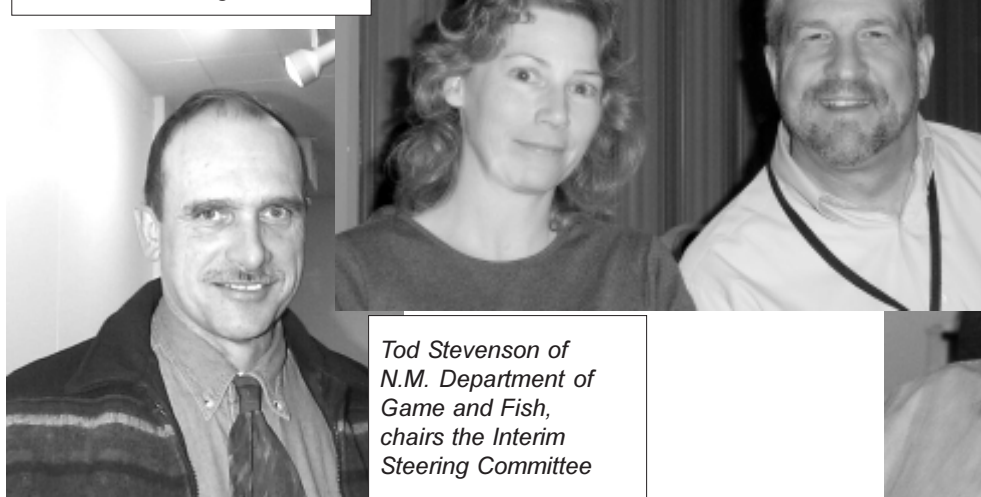
The Interim MOU also committed the signatories to exercise creative and flexible options under the ESA so that existing and planned water projects and activities would continue in compliance with

applicable laws.

As of October 2003, 19 signatories have signed the MOU. These signatories all sit on the Interim Steering Committee. They include:

- Alliance for the Rio Grande Heritage (Alliance)
- City of Albuquerque
- Middle Rio Grande Conservancy District (MRGCD)
- National Association of Industrial and Office Properties
- New Mexico State University (NMSU)
- Pueblo of Isleta
- Rio Grande Restoration
- The University of New Mexico (UNM)
- N.M. Attorney General Office
- N.M. Department of Agriculture
- N.M. Department of Game and Fish (NMDGF)
- N.M. Environment Department
- N.M. Interstate Stream Commission (NMISC)
- N.M. Office of the Lieutenant Governor
- U.S. Army Corps of Engineers (Corps)
- U.S. Bureau of Indian Affairs
- U.S. Bureau of Reclamation (Reclamation)
- U.S. Fish and Wildlife Service (Service)
- U.S. Forest Service Rocky Mountain Research Station

Joy Nicholopolous and Dale Hall of the Service are delegates to the Interim Steering Committee



Tod Stevenson of N.M. Department of Game and Fish, chairs the Interim Steering Committee

Norm Gaume first convened the ESA Workgroup in 1999, when he was Director of the NMISC.



GOALS OF THE COLLABORATIVE PROGRAM



The ESA Workgroup, in forming the Collaborative Program, adopted the following goals in their governing document:

1 Within the Middle Rio Grande Program area, act to prevent extinction, preserve reproductive integrity, improve habitat, support scientific analysis, and promote recovery of the listed species. The Program will strive to accomplish this in a manner that benefits the ecological integrity, where feasible, of the Middle Rio Grande riverine and riparian ecosystem. Actions undertaken by the Program should benefit other protected species, maintain wild populations, improve the efficiency of water use and management, and provide water to sustain the listed species. The ultimate goal of the Program is to complete activities that, along with other activities by the action agencies and interested parties, meet established criteria in the Middle Rio Grande for its contribution to de-listing of the listed species, such that the Program within the Middle Rio Grande area will no longer be necessary.



Rio Grande at Coronado State Monument

2 To develop agreements with water users and water management entities that will make supplemental water available, and manage the storage and release of water, in ways that contribute to the recovery of listed species.

3 Implement creative and flexible options under the ESA so that existing, ongoing, and future water supply and water resource management activities and projects can continue to operate and receive necessary permits, licenses, funding, and other approvals so that the Signatories and other water users in the Program area are deemed by the Service to be in compliance with the ESA. These water supply and water resource activities and projects include, but are not limited to, maintenance of water conveyance facilities and other actions to meet New Mexico's downstream compact obligations; flood control; legal uses of native Rio Grande water; and diversion and consumptive use of Stage I of the SJCP water as provided by the Colorado River and Upper Colorado River Basin Compacts for its authorized, contracted, and legal purposes, as provided by contracts and in accordance with the SJCP authorizing legislation.

4 Achieve Goals 1 and 2 (recovery and water management goals) in such a way that the Program does not impair: valid state water rights; federal reserved water rights of individuals and entities; SJCP contractual rights; the State of New Mexico's ability to comply with interstate stream compact delivery obligations; and Indian trust assets including federal reserved Indian water rights, prior and paramount, and time immemorial water rights while exercising creativity and flexibility in order to address the needs of the listed species.



ORGANIZATIONAL FRAMEWORK

The Interim Steering Committee completed a draft Program Document in 2003 that will guide the development of the Collaborative Program. The draft Program Document covers objectives, governance, cost sharing, and expected activities with estimated budgets and timelines for the Collaborative Program. Comments made during the scoping process for a programmatic environmental impact statement (EIS) will be used to finalize the Program Document.

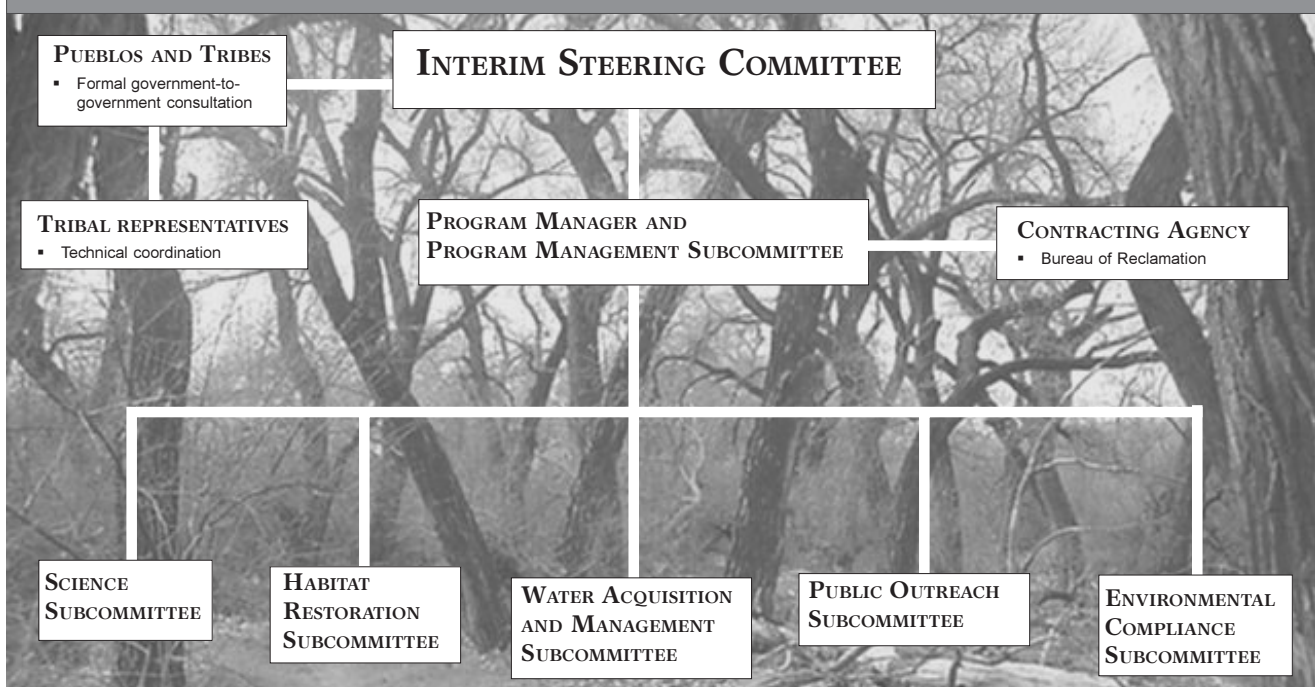
The organization chart below shows the current structure of the ESA Workgroup. The Interim Steering Committee directs the Collaborative Program's standing subcommittees [Science, Habitat Restoration, Water Acquisition and Management (WAM), Environmental Compliance, Program Management and Public Outreach] in their tasks and activities. This governing body operates by consensus, which ensures that decisions are of a truly collaborative nature.

The Program Management subcommittee currently provides management support for the ESA Workgroup. This subcommittee includes representatives of the MOU signatories, as well as the chairpersons of the other standing subcommittees.

The technical subcommittees cover three major subject areas: habitat restoration, science and monitoring, and water acquisition and management. Technical staff of signatory organizations serve on these technical subcommittees, and participation by other interested parties is strongly encouraged. The Public Outreach subcommittee coordinates publicity and public involvement, and the Environmental Compliance subcommittee focuses on NEPA compliance, which is required for the Collaborative Program because it is federally funded.

The region's Pueblos and Tribes play a significant role in the ESA Workgroup and in developing the Collaborative Program, either as signatories or

COLLABORATIVE PROGRAM ORGANIZATION





Steve Harris represents Rio Grande Restoration on the Interim Steering Committee and serves on the Water Acquisition & Management Subcommittee

nonsignatory participants. Government-to-government consultation is ongoing between the Pueblos and Tribes and the federal agencies as well as with the State of New Mexico. This interaction is critical to the success of the Collaborative Program.

Meetings held by the Interim Steering Committee and its subcommittees are open to the public with the exception of proposal review meetings, which require confidentiality for the proposers. The ESA Workgroup welcomes and invites participation by the community.

Planning and implementation

- *How long will the ESA Collaborative Program be in place once it has been authorized by Congress?*



Susan Kelly of the City of Albuquerque, Water Acquisition and Management Subcommittee member

- *What are the major projects the Collaborative Program wants to accomplish?*
- *Do we understand enough about the listed species to help in their recovery?*

- *How much will this effort cost?*
- *How much water is needed for the silvery minnow?*
- *How can we better involve the community?*

Answers to these and many other questions are being addressed by the Interim Steering Committee and its six standing subcommittees by consensus-building, planning, and implementation of projects. The six subcommittees provide technical assistance and proposal review for the ESA Workgroup.

The subcommittees are developing a long-term plan that will be used to guide the Collaborative Program's activities. This plan includes plans by the subcommittees for water acquisition and management, habitat restoration, science and monitoring.



Eileen Grevey-Hillson of NAIOP is vice-chair of the Interim Steering Committee and chairs the Public Outreach Subcommittee

The ESA Workgroup initiated public scoping meetings for National Environmental Policy Act (NEPA) review of proposed programmatic activities in 2003. The NEPA public scoping and compliance process ensures full public disclosure of the socio-economic and environmental impacts of the recovery actions to be conducted by the Collaborative Program.



Olga Boberg of Reclamation serves on the Program Management and Environmental Compliance Subcommittees.



Estevan López, Director of the NMISC; Karl Wood, Director of the New Mexico Water Resources Research Institute, and Sterling Grogan of MRGCD at an Interim Steering Committee meeting.

Middle Rio Grande Programmatic Biological Opinion

One priority for the Collaborative Program is to accomplish projects that meet Middle Rio Grande Programmatic Biological Opinion requirements issued by the Service. In 2001, the Service's Biological Opinion found that the proposed federal and non-federal actions related to water management and to federal river management actions were likely to jeopardize the existence of the listed species. The Biological Opinion also contained a reasonable and prudent alternative and incidental take statement, which the federal agencies and non-federal parties must implement. In March 2003, the Service issued a Biological Opinion on the effects of a similar suite of actions proposed for a 10-year period that accounted for below-average runoff. The

Service analyzed the threats to the species and developed several elements of a reasonable and prudent alternative based on the biological needs of the species. The ESA Workgroup's long-term plan will address and support compliance with the Biological Opinion issued in 2003.

Collaborative Program authorization

Senator Pete Domenici has sponsored three years of write-in requests in Congress for ESA Workgroup activities. The ESA Workgroup has prepared draft legislation to authorize the Collaborative Program for a ten-year period. If this bill passes in Congress and is signed by the President, the Collaborative Program will be authorized to receive funding out of appropriations from each year's budget bill. While it does not guarantee a fixed amount each year, the legislation will improve the likelihood of consistent funding for the life of the Collaborative Program. A draft of the authorizing legislation was sent to Senator



Senator Domenici (center right) releases silvery minnow into the City of Albuquerque's naturalized refugium. With the Senator, to his left: Chris Altenbach of the City of Albuquerque and Jude Smith of the Service; to his right, Dale Hall of the Service and Albuquerque Mayor Martin Chavez



Anna Maria Muñoz of the Fish and Wildlife Service served as a member of the Habitat Restoration and Environmental Compliance Subcommittees.

Domenici and Senator Bingaman in October 2003.

Preliminary budget estimates for a ten-year program effort are from \$120 to \$150 million. As with most federal programs, a local cost share is required. A non-federal cost share of 25% has been proposed.

Consultation with Pueblos and Tribes

The Pueblos' commitment to the health of the river is long-standing, and they have been very active and knowledgeable regarding river restoration. Some of the best potential for establishing

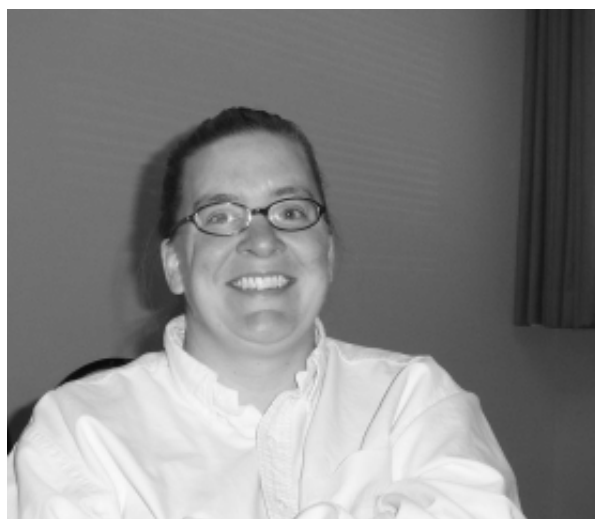


Joe Jojola represents the Bureau of Indian Affairs on the Interim Steering Committee

habitat for both the silvery minnow and the flycatcher is on Pueblo or Tribal lands. All participants in the Collaborative Program have acknowledged the senior water rights of the Pueblos and Tribes. It is envisioned

that both the Collaborative Program and the Native American communities will greatly benefit from effective working relationships.

The federal agencies and the New Mexico state agencies have commitments with the Pueblos and Tribes for government-to-government consultation regarding the Collaborative Program. On April 19, 2002, the first "Tribal/Federal Educational Session on Collaborative Program and ESA" was held. Of the 26 Pueblos and Tribes invited, 22 participated, along with federal agencies and staff of Senators Bingaman and Domenici. A follow-up session was held in October 2002. These sessions supplemented the



Kara Gillon serves on the Interim Steering Committee representing the Alliance for the Rio Grande Heritage

one-on-one consultations with the Pueblos and Tribes. Two NEPA scoping meetings for Tribes and Pueblos are scheduled to receive their input. The Pueblo of Isleta joined as a signatory to the MOU in 2003. They are active participants in the technical subcommittees. The Pueblo of Isleta seeks to restore its riparian and riverine habitat with the participation of the Collaborative Program.

THE RIO GRANDE SILVERY MINNOW

The Rio Grande silvery minnow (*Hybognathus amarus*/silvery minnow) is a stout minnow with moderately small eyes and a small, slightly oblique mouth. Adults may reach up to four inches in total length. Life color is silver with emerald reflections and fins are plain. Its dorsal fin is distinctly pointed.

The silvery minnow currently exists in the Middle Rio Grande from Cochiti Dam downstream to the headwaters of Elephant Butte Reservoir, New Mexico.

Historically, the silvery minnow was among the most abundant and widespread fishes in the Rio Grande Basin, found from Española, N.M., to the Gulf of Mexico. It also was an inhabitant of the Pecos River, from Santa Rosa, N.M. to where the Pecos meets the Rio Grande in west Texas. Collection data indicate the species presently occupies about five percent of its historic range and is no longer present in the Pecos River or in the Rio Grande below Elephant Butte Reservoir.

Listing, recovery plan, and designation of critical habitat

The silvery minnow was federally listed as endangered on July 20, 1994 by the Service; the State of New Mexico also lists the minnow as an endangered species. The recovery plan for the silvery minnow was



Rio Grande silvery minnow (*Hybognathus amarus*)

released in July 1999, and is currently under revision. The plan's objectives are to:

- 1) increase silvery minnow numbers,
- 2) enhance its habitat in the Middle Rio Grande, and
- 3) expand its range by establishing the silvery minnow in at least three other areas.

Critical habitat was designated on February 19, 2003. It extends from Cochiti Dam downstream to elevation 4450 feet above mean sea level, which is the elevation of the Elephant Butte Reservoir spillway. This coincides with the location of the utility line that crosses the Rio Grande in Socorro County, New Mexico. The critical habitat is approximately 157 miles long. Laterally, critical habitat is defined as the area within existing levees or, where no levees exist, 300 feet of riparian zone on each side of the bank-full stage of the river. The lands of Santo Domingo, Santa Ana, Sandia, and Isleta Pueblos within this area are not included in the critical habitat designation.

Silvery minnow habitat

The silvery minnow travels in schools and tolerates a wide range of habitats, but prefers areas with low-velocity flows over silt or sand substrate. These habitats are typically shallow braided runs, backwaters, side channels, and pools.



One example of silvery minnow habitat, courtesy of SSPA, Inc.

The Rio Grande and its watershed have been vastly modified in recent times, which is hypothesized to be the main reason for the decline of the silvery minnow. Much of the minnow's habitat has been degraded by these changes. The magnitude, duration, frequency, and timing of flows have been systematically altered to support the human uses of Rio Grande water. Channelization and levee construction changed how the river and the floodplain interact. Channel-straightening generally increased the river's depth and flow velocities. The riverbed has changed as the quality and quantity of sediment sources have changed.

These geomorphic changes in the river reflect past and present changes in the factors that determine how the river behaves. Habitat-restoration strategy focuses on allowing a new geomorphic state to evolve that promotes a dynamic functioning river system with habitat attributes believed to be important in the life cycle of the silvery minnow and flycatcher.

In many reaches the Rio Grande channel has become narrow and deep and is generally disconnected from the floodplain. There are now fewer

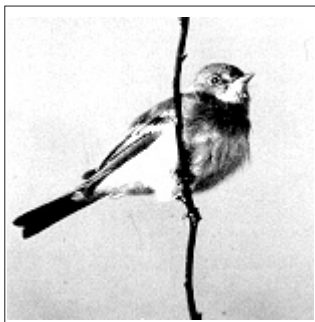
low-velocity side channels and backwater areas as a result of the narrowing and straightening. Diversion dams have fragmented minnow habitat and prevented upstream migration.

Silvery Minnow Population

Researchers, primarily at UNM, the Service, and NMDGF have conducted silvery minnow population monitoring since 1996. Based on their data, the population has continued to decline. Monitoring results in 2003 show continued uneven distribution of the minnow in the Middle Rio Grande, with silvery minnow occurring primarily downstream of Albuquerque in reaches that frequently have flow intermittency. Drought conditions in 2002 and 2003 were associated with estimates of continued declines in silvery minnow distribution and density.

Reclamation publishes current and past data on silvery minnow monitoring, including maps and descriptions of the monitoring programs, on its Rio Grande Silvery Minnow Population Monitoring website www.usbr.gov/uc/albuq/envprog/rg/.

THE SOUTHWESTERN WILLOW FLYCATCHER



The southwestern willow flycatcher (*Empidonax traillii extimus*/flycatcher) is a small neotropical migratory bird about 5 ¾ inches long, weighing about 0.42

ounces. Its back and wings are grayish-green and it has two visible wingbars, a whitish throat, light grey-olive breast, and pale yellowish belly. Its song is a sneezy “fitz-bew;” its call a repeated “whitt.” Though males are the primary singers, females also sing occasionally.

Extensive loss and modification of flycatcher habitat has resulted in reductions in flycatcher populations. The entire breeding population of the species is estimated to consist of 900 to 1100 pairs.

Along with habitat loss, the flycatcher has been impacted by brood parasitism by the brown-headed cowbird—that is, cowbirds lay their eggs in flycatcher nests, and the flycatchers sit on the nests until the eggs hatch. Because cowbirds hatch and develop more quickly than flycatchers, they often out-compete the flycatcher fledglings for parental care.



Flycatcher recovery focuses on preserving and creating appropriate habitat and on the hydrological events on which flycatcher habitat depends—scouring floods, sediment deposition, periodic inundation and groundwater recharge.

Flycatcher listing, recovery plan, critical habitat

The Service released the final recovery plan for the southwestern willow flycatcher on August 30, 2002. The plan sets out nine types of actions:

- 1) increase and improve occupied, suitable, and potential breeding habitat;
- 2) increase population stability;
- 3) improve demographic parameters;
- 4) minimize threats to wintering and migration habitat;
- 5) survey and monitor;
- 6) conduct research;
- 7) provide public education and outreach;
- 8) assure implementation of laws, policies and agreements that benefit the flycatcher; and
- 9) track recovery progress.

Critical habitat was designated on July 22, 1997. However, on May 11, 2001, the 10th Circuit Court of Appeals set aside the designa-

GLOSSARY OF FLYCATCHER-RELATED TERMS

<i>sites:</i>	<i>breeding groups</i>
<i>territory:</i>	<i>the unit of measurement used to determine population numbers; the area occupied by a single or pair of flycatchers throughout the breeding season. A flycatcher pair equals a territory, but a territory may be a pair or a single bird.</i>
<i>cluster:</i>	<i>Flycatchers tend to cluster their territories; a flycatcher site may include clusters or only one territory.</i>

tion, and instructed the Service to issue a new designation in compliance with its ruling. This is expected in June of 2004.

Flycatcher habitat in the U.S. is divided into six Recovery Units, each of which is divided into several Management Units, employing watershed boundaries. The Rio Grande is a Recovery Unit with six Management Units; the Middle Rio Grande Management Unit (MRGMU) is defined as extending from Cochiti Lake to Elephant Butte Dam. The recovery goal for the MRGMU is 100 flycatcher territories.



POPULATION MANAGEMENT

Population management includes activities involving propagation, augmentation, and monitoring.

Rescue and salvage and silvery minnow egg collection are also included in population management activities. Present population management efforts for the flycatcher concentrate on monitoring the flycatcher population and assessing the environmental and

habitat factors that may encourage or discourage the establishment of a stable population.



Naturalized refugium at the City of Albuquerque's BioPark

Silvery minnow captive propagation

Expanded efforts have occurred during the past several years for captive propagation, salvage, and transplant of silvery minnow. Captive propagation focuses on establishing refugial populations to

ensure the survival of this species. Facilities include Dexter and Mora National Fish Hatchery and Technology center, Fishery Resources Office and the Warmwater Fish Culture Facility at New Mexico State University and the naturalized refugium at the City of Albuquerque's BioPark.

The aquarium at the Albuquerque BioPark has been rearing silvery minnow for the longest period of time, and it is the only one to achieve naturally-induced spawning of silvery minnow. Housing silvery minnow at multiple facilities increases total capacity and helps guard against extirpation of captive silvery minnow due to unanticipated mortality at a facility related to water quality or other factors. It also allows a variety of individuals and agencies to learn silvery minnow captive propagation techniques, and provides opportunities for broodstock, rearing from wild-caught eggs, and propagation-related research.

Naturalized silvery minnow refugium

The City of Albuquerque and the NMISC, have cooperatively planned and constructed a naturalized refugium for breeding and rearing the silvery minnow at Albuquerque's BioPark. The NMISC contracted with FishPro, Inc. to design the facility and manage construction.



Rescue team races river recession. (Greg Pargas, photo)

contribute to the recovery of the silvery minnow by providing a more natural-type habitat for the fish to spawn and grow, thus, in theory, producing fish that can adapt to the river better than aquarium-raised fish. This facility also provides an opportunity to study the fish in this naturalized environment, which should lead to better management practices on the Rio Grande. The facility has been designed to produce 25,000 fish a year for release to the river and another 25,000 to retain as a captive population. Construction of the naturalized refugium began in July 2002 and the grand opening was on June 27, 2003.

In 2003, the engineering contractor and the construction company for the BioPark's refugium

both received awards for their work. FishPro Inc. received American Conservation Engineer's Award for design of the naturalized refugium and Rocky Mountain Construction Inc. received the "Best of 2003 Awards – Best Civil/Infrastructure Project" by Southwest Contractor Magazine.



Kyra Hodges of Reclamation, participating in inter-agency river-flow monitoring (Greg Pargas, photo)



Rescue team Jude Smith of the Service, Reclamation's Jim Wilber and Mystery Man with Argus rescue vehicle

Rescue and salvage of silvery minnow

Because of drought-induced water shortages and to prevent extinction of the silvery minnow, short-term emergency measures were implemented in the past three years, including rescue, salvage, and transport from drying downstream reaches to flowing upstream reaches or to refugia. In times of drought such as the past several years, river intermittency occurs from July through October, especially in the reaches south of Isleta to Elephant Butte Reservoir. The silvery minnow's highest populations happen to occur in these lower reaches of the Middle Rio Grande. The Service, supported by other agencies, worked to rescue silvery minnow in stretches where the river was drying. The NMISC provided "River Eyes" support that informed the Service of river conditions and warned them of impending river drying locations. Rescued silvery minnow were transported upstream and released in the Albuquerque reach, a stretch of river that generally had continuous flow. Over the past three years, over 5,000 silvery minnow were captured alive and transported to captive propagation facilities or released in upstream reaches.

Silvery minnow population monitoring

Monitoring of wild silvery minnow populations over the past three years showed that the

minnow continues to be distributed unevenly throughout its habitat, with silvery minnow occurring primarily downstream of Albuquerque in reaches that frequently suffer flow intermittency. In 2001 and 2002, monitoring results indicated declines in silvery minnow distribution and density.

Additional information on the population monitoring project can be found at www.usbr.gov/uc/albuq/envprog/rg/rgsm2003/index.html, including current and past data on silvery minnow monitoring, with maps and descriptions of the monitoring programs.



Silvery minnow egg collection in May 2002

Silvery minnow egg collection

Since 2000, collection of silvery minnow eggs from the river during spawning periods has become an extremely important element in the strategy to prevent extinction. Once eggs and larvae flow past San Marcial into the delta of Elephant Butte Reservoir they are highly susceptible to predation by lake fish and birds. Therefore, eggs collected in the southern reaches of the Middle Rio Grande are an important source of silvery minnow for captive propagation and augmentation efforts, and collection in these reaches does not affect the population of wild fish. Egg-collection efforts have been led by Albuquerque's BioPark staff, UNM, and the Service. Many other agencies and groups volunteer in the egg-collection activities.

Minnow spawning is triggered by the spike in river flows that occurs during spring runoff. This

is the ideal time for collection, as silvery-minnow eggs hatch within several days, and fish larvae are difficult to collect. Because of the extremely limited snowpack in 2002 and 2003, no natural spring runoff spike for spawning was anticipated in mid-May, when spawning naturally occurs in wild fish. Therefore, spawning was successfully “induced” by increasing releases for a short period from Cochiti Dam, which created a small flow spike.

In 2003, a late spring runoff occurred that again induced spawning in silvery minnow. Each year, egg-collectors were able to collect several hun-



Silvery minnow egg collection, May 2003

dred thousand eggs in the first two days after the spawn. The number of eggs collected declined rapidly on subsequent days as the river returned to pre-release levels. Eggs were counted and processed at the collection site and then transported to silvery minnow captive propagation facilities to hatch. Some minnows were kept for refuge stock and others were released into the Rio Grande.

The egg collection activities are reported on the Rio Grande Spawning Periodicity Study and Egg Salvage site, at www.usbr.gov/uc/albuq/envprog/rg/

Southwestern willow flycatcher population survey results in the Middle Rio Grande

During the 2002 breeding season, 85 flycatcher territories were found in the MRGMU. Additional flycatcher territories have been found in areas not surveyed in 2002, below the Bosque

del Apache National Wildlife Refuge (NWR) and above the San Marcial railroad bridge. Surveys conducted in 2000 indicate that flycatcher territories are also likely to be present on the Pueblo of Isleta.

A total of 206 flycatchers (126 males and 80 females) were identified. One hundred and six nesting attempts were documented; 54 were believed to be successful and 52 were known to have failed. The successful nests fledged at least 103 flycatcher young.

Distribution of flycatcher in the Middle Rio Grande

The number of flycatchers has increased in some reaches of river and decreased in others. Flycatcher nesting appears to be absent in the Velarde area. One site was found in the Belen reach in 2002. In the Sevilleta NWR/La Joya State Wildlife Area, numbers increased from 4 in 1999 to 13 in 2002. Three sites were discovered in the Bosque del Apache NWR.

In the San Marcial/Elephant Butte area, the population of flycatcher has increased significantly, from 13 territories in 1996 to 60 in 2002. Most of these are found within the boundary of Elephant Butte Reservoir, a result of good quality habitat that developed with the decreases in stored water due to recent drought conditions. This area, which will most likely be under water in the future, contained 51 of the 63 territories within this reach. It is important to create suitable habitat outside of the reservoir pool for these birds to move into when the reservoir level rises and their present habitat is inundated.

Preferred flycatcher habitat

Survey data from the past several years suggest that flycatchers prefer native-dominated areas, but may often select saltcedar as nest trees for their dense, vertical twig structure. Monitoring and analysis is focused on identifying the mix of riparian vegetation needed by the flycatcher.

HABITAT RESTORATION

The June 29, 2001 Biological Opinion required that habitat restoration projects be completed in eight designated reaches of the river. The designated reaches recommended for 2003 include the San Marcial and Velarde reaches. Projects in the Cochiti, Middle (Albuquerque), and Belen reaches were funded in 2002. Construction has been completed on the Los Lunas project in the Belen Reach and contracts are in place for the Cochiti and Middle reach projects.

The March 17, 2003 Biological Opinion replaced the 2001 version. It places short-term emphasis on silvery minnow habitat restoration north of San Acacia Diversion Dam, the reach of the river with the most dependable flows.

Habitat goals

The habitat needs of the two species are highly complementary, though not identical. Most habitat restoration projects should benefit both species.

Habitat-restoration emphasis in the short term will be on restoration of silvery minnow habitat in the upper reaches above Los Lunas, where year-round flows are considered more feasible. In lower reaches, the focus will be on projects that can be staged to address mid- and long-term aquatic habitat-improvement needs. The information gained from evaluating existing and manipulated conditions and results of the research currently underway will be used in an adaptive-management framework.

The flycatcher breeds in dense riparian habitats, typically near open water, cienegas, marshy seeps or saturated soil, sometimes in standing water. Flycatcher habitat can change quickly. A nesting habitat of willows can grow out of suitability; saltcedar habitat can develop from seeds to suitability in five years; heavy runoff can remove or reduce habitat suitability in a day. The Collaborative Program seeks to protect existing suitable habitat and to establish new habitat for the flycatcher.



Los Lunas habitat restoration project along left river bank. 2003, Reclamation

Quality nesting habitat for the flycatcher will be protected and created by habitat restoration along the river's edge. Current monitoring efforts will continue, to provide the knowledge needed for the design and construction of riparian habitat that will grow into a suitable age and structure for these birds. This work began in FY2001, and evolving projects will be staged over the life of the Collaborative Program.

Habitat Restoration Plan

The Habitat Restoration subcommittee is working with NMISC and its contractor, TetraTech Inc. to develop a long-term habitat-restoration plan prior to development of the Collaborative Program's long-term plan. A set of "white papers" on habitat-restoration issues were completed that addresses restoration techniques, priorities, and economic considerations. Reach-specific plans will define habitat needs of distinct reaches of the river.

For FY2003, the Habitat Restoration subcommittee received 26 habitat restoration proposals for a total cost of \$8.6 million. Some were for construction work and others for planning and design. The subcommittee recommended full or partial funding for 16 of these proposals.

Los Lunas Habitat Restoration Project

The Los Lunas Habitat Restoration Project is one of the first large projects funded through the Collaborative Program. The river in this area was narrow and channelized. The site was selected partially because the bosque here was severely burned in 2000. The efforts have included removal of jetty jacks along 6,000 feet of the western bank of the river, lowering approxi-



Gina DelloRusso of Bosque del Apache NWR, co-chairs the Program Management Subcommittee. She is shown at the Bosque Hydrology Group's tour of Santa Ana's restoration, July 2002.

mately 50 acres of riverbank, and contouring to reintegrate floodplain functions. Side channels, wetlands, and other habitat features have been constructed. Monitoring of the restoration site will continue for a number of years to learn more about the effectiveness of the restoration.

Other Habitat Restoration Projects

Several projects were started with FY2001 and FY2002 funding to improve habitats for both the silvery minnow and flycatcher, especially on Pueblo lands. Pueblo lands make up a sizeable portion of the upper Middle Rio Grande area and Pueblo participation in habitat restoration has been strongly encouraged.

Approximately 40 acres at the Pueblo of Sandia are slated for modification to improve habitat for the silvery minnow and the southwestern flycatcher. The Pueblo is involved in mapping of its area, conducting project site investigation for floodplain modifications, and selecting the most favorable locations to restore native riparian vegetation.

The Pueblo of Cochiti's project includes activities to restore the health of the bosque by removing nonnative vegetation, fencing to manage livestock grazing along the riparian areas, and planting willow and other native species within a modified floodplain environment.

The Collaborative Program has provided funding to assist the Pueblo of Santa Ana in its ongoing efforts to restore and create riparian and riverine habitat. The Pueblo has completed about 500



Dr. José Rivera represents UNM on the Interim Steering Committee. Chris Gorbach of Reclamation, in the background, is co-chair of the Habitat Restoration Subcommittee.

acres of restoration along the Rio Grande floodplain on the Pueblo, with the assistance of the Service, Reclamation, and the Bureau of Indian Affairs. Willow swales are being created on another 100 acres to improve flycatcher habitat, and the area is being planted with native vegetation. The Pueblo has identified another 165 acres suitable for flycatcher habitat restoration.

With the assistance of Reclamation, the Pueblo has realigned the river channel along the upper two miles of the Rio Grande within its borders, allowing portions of the former channel to be retained as backwater habitat. A gradient restoration facility (GRF) has been installed with a 500-foot long fish passage apron.

The Pueblo is currently working with the Corps on a restoration project which will continue these efforts along the remaining four miles of the Rio Grande within the Pueblo. Two additional GRFs will be installed along with a downstream bed sill

to provide a transitional riffle between the stabilized river channel within the Pueblo reach and the degrading channel downstream of the Pueblo. The low-velocity flows thus created will provide better silvery minnow habitat. This work will encourage over-bank flooding and create backwater habitat, resulting in a healthier riparian zone for flycatchers and other native wildlife. The Pueblo of Santa Ana and Reclamation are constructing an additional backwater restoration project near the confluence of the Rio Jemez and the Rio Grande.

Exotic species control

Approximately 230 acres of dense saltcedar growth south of Socorro were sprayed with a combination of herbicides using a helicopter boom sprayer in early September 2002. It generally takes two years for the treatment to reach its full effect. The treated saltcedar will be burned in late summer 2004, and then the area will be root plowed and root raked to control remaining re-sprouts. Restoration to riparian woodland and saltgrass meadow habitat is scheduled for 2005 and 2006.

Additional projects for 2003

Approximately \$2.7 million will be used on habitat restoration projects from funds appropriated by Congress for FY2003. These projects include: completion of the Los Lunas Project; restoration of fluvial processes and native flora on Bosque del Apache; several new and continuing projects by Pueblos; and habitat restoration by the City of Albuquerque in the Albuquerque area. Contracts for projects were completed in August 2003, and work will continue into 2004.



SCIENCE

Research and monitoring are essential components of achieving the survival and recovery of endangered species. The ESA Workgroup has a strong commitment to ensuring good science is applied to any recovery efforts for the listed species in the Middle Rio Grande. The scientific progress needed to support habitat restoration and recovery efforts includes:

- Research and monitoring of silvery minnow population and habitat requirements, including studies in conservation genetics, population monitoring, propagation, habitat quality, and refugium development.
- Research on hydrology, fluvial morphology, and water quality on the Middle Rio Grande, including studies in evapotranspiration, sediment transport and hydraulics, groundwater/surface water interaction, contaminant issues, and channel morphology.
- Research and monitoring of flycatcher population and habitat management, including vegetation mapping for habitat analysis, surveys of flycatcher presence or absence, and nesting success relative to brood parasitism and habitat quality.

The scientific community has taken an avid interest in ESA issues on the Middle Rio Grande, as indicated by the receipt of 50 science proposals for FY2003 funding, proposing nearly \$7.1 million in scientific investigation. After external peer review, the Science subcommittee recommended 20 of these for a budget of approximately \$2 million. In addition to oversight of these studies, the

Science subcommittee will complete development of the long-term science plan by the end of 2003 that will guide the selection of scientific research projects. A selection of projects funded within the science arena is described in this section.

Silvery minnow movement study

This project assessed the movement patterns of marked groups of silvery minnow to provide data on home range, distance traveled, and schooling behavior. Biologists began marking minnows in October 2001, and regularly monitor marked fish at each study site. The successful development of an effective mark-recapture procedure will facilitate other research studies. The release of marked hatchery-reared minnows has been coordinated between appropriate federal and state resource agencies.

The marked fish have been monitored throughout 2002 and 2003, in conjunction with population monitoring. The study has looked at the silvery minnow reproductive strategy in which minnow eggs and larvae move downstream, while the adult fish move upstream.

Assessment of behavior and swimming ability of silvery minnow for design of fish passage structures

This study assesses the behavior and swimming performance of silvery minnow for designing fish passage structures for diversion dams that would reestablish upstream pathways for silvery minnow. Unobstructed routes upstream are important because silvery minnow produce semi-



Marking silvery minnow before releasing them to the river.



Silvery minnow eggs

buoyant eggs and larvae that drift long distances downstream. Little is known about passage characteristics of small-bodied stream fish, like the minnow, that have evolved in a low-gradient riverine system without turbulent flow.

Water quality assessment

In September 2001, the Service initiated a study to assess water quality in relation to silvery minnow habitats within the Middle Rio Grande with funding from the Collaborative Program, the Service, and the NMISC. The primary purposes of this project were to determine: 1) the nature and extent of water quality within the Middle Rio Grande; 2) the potential role of water-quality degradation in the decline of the silvery minnow; and 3) the water-quality needs of the silvery minnow. In designing this project, historic water-quality data were reviewed to assess data needs. Field-sampling activities were conducted between July 2002 and March 2003 and included forty sampling events at fourteen sites. Chemical analyses were conducted on water, sediment, and fish tissue and health assessments were conducted on live fish. All data are currently being

validated for final reporting. A data report documenting this study is scheduled to be completed by the end of 2003. In conjunction with this study, the Service and the U.S. Geological Survey conducted acute and chronic toxicity tests on silvery minnow with river water, effluents, and ash from a recent bosque fire. Information collected through these studies will be used to guide future water-quality monitoring as it relates to the silvery minnow health and habitat quality in the Middle Rio Grande.

Measuring evapotranspiration depletions within the Middle Rio Grande Bosque

How much water is used by native and nonnative vegetation is important in the river-basin water budget and an understanding of these depletions is necessary for water management. Depletions due to changes in evapotranspiration must be accounted for when new habitat restoration projects are constructed. Studies that quantify riparian evapotranspiration (ET) therefore are a high priority and have been funded through both federal and state agencies since 2001.

NMSU originally partnered with Reclamation to establish three towers equipped to measure ET of saltcedar and cottonwood at the Bosque del Apache NWR. NMSU continues to collect data from these towers assisted by funding from the Collaborative Program. UNM also monitors ET from four towers located between Albuquerque and the Bosque del Apache NWR. NMISC has funded UNM for the collection of ET data from these towers, and for the expansion of the study to a Russian olive site.

Researchers transmit their ET data to a website called the ET Toolbox, located at <http://www.usbr.gov/pmts/rivers/awards/NM/riogrande.html>. This site provides daily estimates by reach of riparian ET in the Middle Rio Grande valley. It is used by water managers when determining water operations for water users and listed species.



Cynthia Abeyta of the Service and colleague testing water quality

WATER ACQUISITION AND MANAGEMENT

The Middle Rio Grande communities have been active water managers for centuries. Native American communities understand and honor the water that sustains their lives, and taught the Spanish who settled among them how to establish community ditches. In the twentieth century, the Middle Rio Grande Conservancy District (MRGCD) improved conditions for irrigated agriculture through draining of much of the waterlogged valley, and building of storage and water-conveyance infrastructure. Reclamation and the Corps rehabilitated these facilities and provided flood control in the valley. New Mexico's state water administration was the first



Flash flood on the Rio Puerco

in the west to recognize that ground and surface waters were related, and to administer them conjunctively. Albuquerque and Santa Fe are leaders in proactive western water supply policy. Reclamation constructed the San Juan Chama Project (SJCP) nearly four decades ago to bring New Mexico's share of

Colorado River water into the Rio Grande basin where it is most needed, and New Mexico communities have paid on their SJCP contracts as an investment in their water future.

The consequence of this water-management history is that Middle Rio Grande communities

Required-flow regimes established through either litigation or the Biological Opinions issued by the Service

Court-ordered mediation in 2000 and the Agreed Order associated with *Minnow v. Martinez* (later *Minnow v. Keys*) required continuous flow from Cochiti Dam to the headwaters of Elephant Butte through the end of the irrigation season.

The June 29, 2001 Biological Opinion, issued by the Service, required continuous flow from Cochiti to the headwaters of Elephant Butte Reservoir from November through April and then called for a ramp-down of flow to a minimum of 50 cfs downstream of San Acacia Diversion Dam for the remainder of the irrigation season.

The March 17, 2003 Biological Opinion differentiates flow requirements in dry, average, and wet years as defined, and based on the April snowmelt runoff forecast at Otowi

gage (as well as whether Article VI and/or VII storage restrictions of the Rio Grande Compact are in effect). All scenarios require continuous flow from Cochiti to the headwaters of Elephant Butte from mid-November to mid-June. Dry-year requirements are for continuous flow from mid-June to mid-November from Cochiti Dam to Isleta Diversion Dam, with a minimum flow of 100 cubic feet per second at the Central Avenue Bridge in Albuquerque. Average-year flow requirements are the same as those described for the 2001 Biological Opinion. Wet-year flow requirements are higher with the intention of allowing populations of silvery minnow and flycatcher to rebound.

have fully utilized the region's water. Many projects that increased the use-efficiency of the regional water supply—jetty jacks, levees, river straightening, flood control, diversion dams, the Low Flow Conveyance Channel (LFCC)—have had negative impacts on silvery minnow and fly-catcher habitat.

In 2002, the Rio Grande experienced the worst single-year drought in recorded history—tree-ring data indicate that the last comparable drought was 400 years ago. Snowpack was very low—20-30 percent of average—and much of that was lost as a result of spring winds. The year 2003 brought little relief, especially because low storage levels at Elephant Butte Reservoir brought Article VII of the Rio Grande Compact into effect, so that no native runoff could be stored in reservoirs built after 1929 upstream of Elephant Butte Reservoir, except to serve Indian water rights.

The creative and even-handed collaboration of ESA Workgroup participants mitigated the losses of these very difficult years, demonstrating that energetic and coordinated collaborative efforts can greatly improve management of the fully-appropriated Rio Grande.

Collaborative Program water-related projects

The Water Acquisition and Management (WAM) subcommittee is responsible for securing short- and long-term water supplies for the Collaborative Program, as well as determining strategies to improve water management in the Middle Rio Grande. The WAM subcommittee has conducted a broad evaluation of opportunities that could



Rolf Schmidt-Petersen, NMISC's Middle Rio Grande bureau chief, and colleagues on a field-reconnaissance of the San Marcial reach.

yield water sources for ESA purposes, and has prepared a series of short papers to help the Interim Steering Committee identify the most likely areas on which to focus its water management and acquisition efforts.

For FY2003

funding, 22 proposals were evaluated by the WAM subcommittee and eight were recommended for funding on topics including:

- Supplemental water acquisition and support for LFCC pumping
- LFCC permanent pumping plant design
- Flow quantification; installation of new river gages
- Evaluation of the hydrologic effects of retiring land from irrigation
- Conveyance loss and farm efficiency study
- Evaluation of how changes in the hydrograph have affected the Middle Rio Grande, and
- Study of rotational water delivery in the MRGCD.

The following sections describe the water acquired and water management tools used to meet the requirements of the Biological Opinions of the June 29, 2001 and March 17, 2003 Biological Opinions.

Supplemental Water Program

Reclamation manages the supplemental water program, which relies on voluntary leases of water from SJCP contractors. SJCP water is part of New Mexico's share of Colorado River water under the Upper Colorado River Basin Compact.

It must be fully consumptively used within New Mexico. The SJCP water leased by Reclamation is exchanged for the MRGCD's native Rio Grande water. The MRGCD agrees to allow the exchanged water to pass its diversions to meet downstream flow requirements.

In 2002, 6,424 acre-feet (af) were available in leases from SJCP water contractors; this was not enough water to meet the June 29, 2001 Biological Opinion requirements (see inset, page 19). An acre-foot, or the amount of water that would cover an acre of land to the depth of one foot, is equivalent to 326,000 gallons of water. In June 2001, the NMISC negotiated the Conservation Water Agreement that made an additional 25,851 af available for release during 2002. And in May 2002, Albuquerque leased 42,236 af of its SJCP water to Reclamation for the supplemental water program and also provided water to MRGCD irrigators. In all, about 74,000 af were released in 2002 for ESA purposes. Late-season rains helped to meet the flow requirements for the remainder of the year. The supplemental water releases were so closely managed that, at the end of the year, only 658 af of supplemental water (less than 1%) remained. In 2003, approximately 30,000 af of supplemental water was released.

Pumping

Reclamation also manages five temporary pumping stations, which are all located south of Socorro, to convey water from the LFCC to the river to supplement river flows. This pumped water supports both silvery minnow, during periods of intermittency, and flycatcher habitat.



Dick Kreiner is the Corps' alternate on the Interim Steering Committee and serves on the Water Acquisition and Management Subcommittee

Conservation Water Agreement, June 2001

The water releases required under the Agreed Order in 2000 resulted in adding 100,100 af to New Mexico's accumulated Rio Grande Compact credits. The Conservation Water Agreement was negotiated in June 2001 between the NMISC and the federal action agencies to use the credit water to benefit the minnow. New Mexico obtained permission from the Rio Grande Compact Commission to store

its credit water in upstream reservoirs for release between 2001 and 2003 and then agreed to lease up to 100,000 af of those releases to Reclamation for the minnow's benefit. The NMISC committed to spend all lease revenues to benefit the minnow.

Emergency Drought Water Management Agreement

Dry conditions persisted in 2003. Because water stored in Elephant Butte Reservoir fell below 400,000 af, Article VII of the Rio Grande Compact came into effect. Article VII requires that no native Rio Grande water be stored in New Mexico reservoirs upstream of Elephant Butte and built after 1929, except for Indian purposes. In the spring of 2003, New Mexico initiated negotiations with Texas to relinquish some of New Mexico's credit water in exchange for a right to store a similar quantity of water in

upstream reservoirs for irrigation (140,000 af over three years), municipal supply for Santa Fe (7,500 af), and endangered species (70,000 af over three years). Texas agreed to accept relinquishment of 122,500 af in 2003 and enough more to bring the total to 217,500 af by March 1, 2004, plus evaporative losses.



Pumping from the LFCC

FUNDING

Funding for Collaborative Program activities totaled approximately \$26 million dollars of federal appropriations and \$5 million in nonfederal contributions from FY2001 through FY2003.

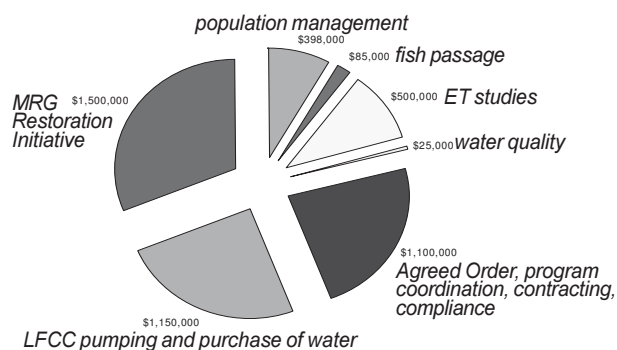
Federal contributions

Congress provided Reclamation with \$4.76 million in FY2001 for ESA-related work in the Middle Rio Grande. In FY2002, \$11.2 million was expended for Collaborative Program activities, and \$8.848 million was expended in FY2003.

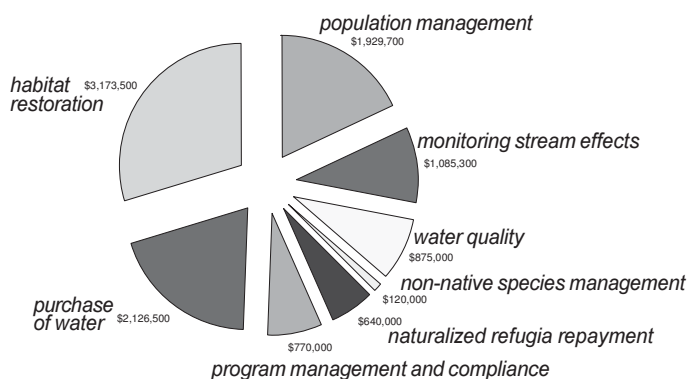
Collaborative Program funding has been used to meet the requirements of the June 29, 2001 and March 17, 2003 Biological Opinions and other goals of the Collaborative Program. Reclamation is the contracting and fiscal agency for the federal support of Collaborative Program activities. Congress has appropriated money to Reclamation for Collaborative Program activities under specific categories of work.

Nonfederal funding

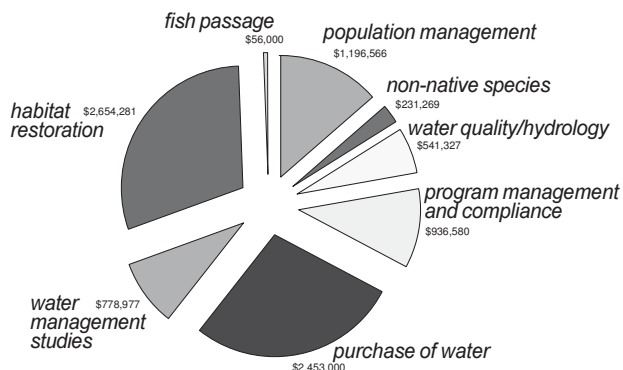
The State of New Mexico initiated the design and construction of the naturalized refugium at the BioPark. The NMISC provided funding for the design and construction of the facility and teamed with the City of Albuquerque, which provided the staff and land for the facility. The cost to build this facility was about \$1.5 million dollars. Funding from the Collaborative Program reimbursed the State for \$640,000 of that amount. The New Mexico legislature, through the Water Trust Board, appropriated \$1.5 million dollars for capital improvements for the Middle Rio Grande related to ESA. These funds will be used for habitat-restoration and irrigation-improvement projects starting in 2003. The Water Trust Board has



FY2001 DISTRIBUTION OF FUNDS



FY2002 DISTRIBUTION OF FUNDS



FY2003 DISTRIBUTION OF FUNDS

been supportive of continued funding for nonfederal cost share to ESA collaborative programs. The NMISC has also provided significant funding over the past three years for evapotranspiration studies, hydrologic analyses, and river monitoring activities. Other signatories have provided in-kind services such as providing volunteers for egg collection, land use and access, and technical expertise in support of the Collaborative Program's goals.

FY2003 Proposal Process

For the first time, in FY2003 the Collaborative Program solicited proposals for projects through a Request for Proposal (RfP) process. Previously, most projects were funded through the agencies, primarily the federal agencies. The objectives of the proposal processes were to obtain additional ideas and innovative technologies, to provide new research directions, and to involve the larger Middle Rio Grande community in river restoration. Proposals were solicited in four major categories: Science, Habitat Restoration, Water Acquisition and Management, and Program Management. The subcommittees reviewed and ranked the proposals. The Science proposals were also peer-reviewed.

The distribution of funds expended for each year is depicted in the pie-charts on page 10. Each year, between 23 and 36 percent of Collaborative Program funding has been used to acquire water, generally through short-term leases. Leased water is released from upstream reservoirs and additional water is pumped from the LFCC into the river to meet Biological Opinion requirements for the silvery minnow and flycatcher. Reclamation provides additional funding for maintenance and operation of pumps and water acquisition.

Drought conditions and development of river drying have meant an increase in spending by the Collaborative Program and individual agencies for emergency rescue and salvage operations.

Habitat restoration projects have received between 29 and 34 percent of the Collaborative Program budget for the past three years. The remaining funds are used for population management, fish-passage feasibility studies, water quality, hydrology and geomorphology studies, non-native species control, and program management, including the programmatic EIS.

The naturalized refugium at the City of Albuquerque's BioPark has been funded by the NMISC, the City of Albuquerque, and the Collaborative Program.



SUMMARY

The Middle Rio Grande ESA Collaborative Program has the goal of contributing to the recovery of the listed species on the MRG while at the same time protecting present and future water uses. Support in Congress and the New Mexico legislature is necessary for success in obtaining long-term solutions. It is envisioned that this 10-year Collaborative Program will achieve the fundamental requirements of meeting the March 17, 2003 Biological Opinion, obtaining a secured supplemental water supply, improving water management, and creating/restoring habitat adequate to sustain the listed species. To achieve these objectives the cooperation of the signatories involved is essential. This cooperation occurs through consensus-based governance, which ensures that decisions can actually be implemented once obtained. Public participation is being sought through the NEPA process as well as by having open meetings where ideas and opinions can be expressed.

The Collaborative Program has begun a number of habitat-restoration projects that focus on the silvery minnow and the flycatcher. The Los Lunas project was completed in 2003 and includes over 50 acres of riverbank. Pueblos have also been active in restoration of their riparian and riverine habitat with support from the Corps, Reclamation and the Collaborative Program. The Pueblo of Santa Ana is establishing flycatcher habitat and is going forward with silvery-minnow habitat restoration as well. Other projects that were started in the planning phase with FY2002 funding will begin construc-

tion with FY2003 funding. On-the-ground progress has been delayed due to delays in receiving FY2002 and FY2003 funds.

The Collaborative Program has also supported population management, including propagation, augmentation, and monitoring. The Collaborative Program provides funding for the operation of several fish rearing and breeding facilities. Included in this is a naturalized refugium facility at the City of Albuquerque's BioPark that provides a more naturalized environment to rear and breed silvery minnow. The NMISC and the City of Albuquerque are the primary sponsors of this facility. In June of 2003, a natural (nonhormone-induced) spawning event occurred within the first week of operation producing over 100,000 eggs. The naturalized refugium is becoming nationally recognized as an innovative approach to study the silvery minnow and gain a better understanding of its behavior. It is also critical, as the other rearing and breeding facilities are, for increasing numbers of silvery minnow by augmenting the wild population. Monitoring efforts have been ongoing as well to obtain estimates of the status of the silvery minnow in the river.

The Collaborative Program is completing its analysis of options for obtaining a permanent supply of supplemental water and other means of assuring more consistent flows in the river. Just

as importantly, improvement of water-management practices along the Middle Rio Grande is an important topic among signatories. The Collaborative Program seeks to obtain both short-term leases and long-term purchases of water and arrange suitable conditions for storage and release. The Collabora-



tive Program has had to contend with long-term drought conditions and restrictions set forth in Article VII of the Rio Grande Compact, which prohibits storage of native water in upstream reservoirs while in place. The Collaborative Program is funding additional gages for the river and irrigation canals that will help quantify the water uses in the Middle Rio Grande.

The next several years will show more definite progress for the Collaborative Program, as it moves beyond its interim period, with the completion of a number of important planning documents such as a long-term plan with sched-



Rio Grande river bed, dry

ule of activities, a programmatic EIS, and reach-specific habitat-restoration plans. Many of the habitat restoration projects that were in the planning stages in either 2002 or 2003 will be in construction and/or monitoring. The short-term emphasis on habitat restoration

will be within the Albuquerque area, north to Cochiti. Results from many of the science projects such as sediment modeling, geomorphology, fish behavior, flycatcher monitoring, and evapotranspiration research will be available. Adaptive management will be utilized to make on-the-ground projects effective and economical.



Rio Grande bosque