S. HRG. 108–211

ALBUQUERQUE BIOLOGICAL PARK TITLE CLARIFICATION ACT; TAMARISK CONTROL AND RIPARIAN RESTORATION ACT; SALT CEDAR CONTROL DEMONSTRATION ACT; REPAYMENT CONTRACT WITH TOM GREEN COUNTY WATER DISTRICT; AND UPPER MISSISSIPPI RIVER BASIN PROTECTION ACT

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER AND POWER

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

ONE HUNDRED EIGHTH CONGRESS

FIRST SESSION

ON

S. 213
S. 1236
S. 1516
H.R. 856
H.R. 961

SEPTEMBER 23, 2003

Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

90–751 PDF WASHINGTON : 2003

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2250 Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON ENERGY AND NATURAL RESOURCES

PETE V. DOMENICI, New Mexico, *Chairman*

DON NICKLES, Oklahoma
LARRY E. CRAIG, Idaho
BEN NIGHTHORSE CAMPBELL, Colorado
CRAIG THOMAS, Wyoming
LAMAR ALEXANDER, Tennessee
LISA MURKOWSKI, Alaska
JAMES M. TALENT, Missouri
CONRAD BURNS, Montana
GORDON SMITH, Oregon
JIM BUNNING, Kentucky
JON KYL, Arizona

JEFF BINGAMAN, New Mexico
DANIEL K. AKAKA, Hawaii
BYRON L. DORGAN, North Dakota
BOB GRAHAM, Florida
RON WYDEN, Oregon
TIM JOHNSON, South Dakota
MARY L. LANDRIEU, Louisiana
EVAN BAYH, Indiana
DIANNE FEINSTEIN, California
CHARLES E. SCHUMER, New York
MARIA CANTWELL, Washington

ALEX FLINT, *Staff Director*
JUDITH K. PENSABENE, *Chief Counsel*
ROBERT M. SIMON, *Democratic Staff Director*
SAM E. FOWLER, *Democratic Chief Counsel*

SUBCOMMITTEE ON WATER AND POWER

LISA MURKOWSKI, Alaska, *Chairman*
BEN NIGHTHORSE CAMPBELL, Colorado, *Vice Chairman*

GORDON SMITH, Oregon
JON KYL, Arizona
LARRY E. CRAIG, Idaho
JAMES M. TALENT, Missouri
JIM BUNNING, Kentucky
CRAIG THOMAS, Wyoming

BYRON L. DORGAN, North Dakota
BOB GRAHAM, Florida
RON WYDEN, Oregon
TIM JOHNSON, South Dakota
DIANNE FEINSTEIN, California
CHARLES E. SCHUMER, New York
MARIA CANTWELL, Washington

PETE V. DOMENICI and JEFF BINGAMAN are Ex Officio Members of the Subcommittee

SHELLY RANDEL, *Counsel*
PATTY BENEKE, *Democratic Senior Counsel*

CONTENTS

STATEMENTS

	Page
Allard, Hon. Wayne, U.S. Senator from Colorado, Letter	2
Bingaman, Hon. Jeff, U.S. Senator from New Mexico	3
Brown, A. Gordon, Invasive Species Coordinator, Liaison to the National Invasive Species Council, Department of the Interior	13
Campbell, Hon. Ben Nighthorse, U.S. Senator from Colorado	3
Carlson, Tim, Executive Director, Tamarisk Coalition	29
Domenici, Hon. Pete V., U.S. Senator from New Mexico	4
Gabaldon, Michael, Director of Policy Management and Technical Services, Bureau of Reclamation, Department of the Interior	19
Hirsch, Robert M., Ph.D., Associate Director for Water, U.S. Geological Survey, Department of the Interior	22
Hughes, Debbie, Executive Director, New Mexico Association of Conservation Districts	38
Kind, Hon. Ron, U.S. Representative from Wisconsin	6
Marshall, John, Assistant Director, Colorado Department of Natural Resources	36
Murkowski, Hon. Lisa, U.S. Senator from Alaska	1
Stenholm, Hon. Charles W., U.S. Representative from Texas	9
Stoerker, Holly, Executive Director, Upper Mississippi River Basin Association	41
Tate, Jim, Science Advisor to the Secretary of the Interior, Department of the Interior	15

APPENDIX

Additional material submitted for the record	49

ALBUQUERQUE BIOLOGICAL PARK TITLE CLARIFICATION ACT; TAMARISK CONTROL AND RIPARIAN RESTORATION ACT; SALT CEDAR CONTROL DEMONSTRATION ACT; REPAYMENT CONTRACT WITH TOM GREEN COUNTY WATER DISTRICT; AND UPPER MISSISSIPPI RIVER BASIN PROTECTION ACT

TUESDAY, SEPTEMBER 23, 2003

U.S. SENATE,
SUBCOMMITTEE ON WATER AND POWER,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:37 p.m. in room SD–366, Dirksen Senate Office Building, Hon. Lisa Murkowski presiding.

OPENING STATEMENT OF HON. LISA MURKOWSKI, U.S. SENATOR FROM ALASKA

Senator MURKOWSKI. I call to order this meeting of the Subcommittee on Water and Power. It is my pleasure to welcome everybody to the subcommittee this afternoon. We have a total of five bills before the subcommittee today: S. 213, the Albuquerque Biological Park Title Clarification Act, introduced by Senators Bingaman and Domenici; S. 1236, the Tamarisk Control and Riparian Restoration Act, introduced by Senators Campbell and Allard; S. 1516, the Salt Cedar Control Demonstration Act, introduced by Senators Domenici and Campbell; H.R. 856, a bill authorizing the Secretary of the Interior to revise a repayment contract with the Tom Green County Water Control and Improvement District No. 1, introduced by Congressman Stenholm; and H.R. 961, the Upper Mississippi River Basin Protection Act, introduced by Congressman Kind.

I would like to extend a special welcome to our two distinguished House members here today, Congressman Stenholm who will be offering remarks in support of H.R. 856, and Congressman Kind on behalf of H.R. 961.

I would also like to welcome: Michael Gabaldon, the Director of Policy Management and Technical Services for the Bureau of Reclamation; Gordon Brown, the Invasive Species Coordinator for the Department of the Interior; and Bob Hirsch, Chief Hydrologist and Associate Director of the U.S. Geologic Survey.

Additionally, we will have: Debbie Hughes, representing the New Mexico Association of Conservation Districts; Tim Carlson, representing the Tamarisk Coalition; and John Marshall, assistant director of the Colorado Department of Natural Resources, who will be testifying in support of S. 1236. Holly Stoerker, executive director of the Upper Mississippi River Basin Association, will be testifying in support of H.R. 961.

The subcommittee has also received a letter from Senator Allard in support of S. 1236, written testimony from the Middle Rio Grande Conservancy District and the city of Albuquerque on S. 213, and the Tom Green County Water Control Improvement District No. 1 in support of H.R. 856.

The first bill I would like to mention today is S. 213. A similar measure, S. 2696, was introduced last Congress by Senator Bingaman, and it is my understanding that an amended version of S. 2696 passed the Senate late last year, but left no time for action by the House. I understand there were some changes made and I look forward to hearing today whether or not those concerns have been addressed.

Also before the subcommittee this afternoon are two measures dealing with eradication of tamarisk or salt cedar. The two final bills before the subcommittee today are those which have already passed the House, H.R. 856 and H.R. 961.

I welcome the testimony of the witnesses here today. We do recognize that we have some votes that I do not think we have scheduled with a time agreement yet, but we would anticipate perhaps some interruptions this afternoon. So we appreciate everyone bearing with us.

At this point in time then I would like to invite up Congressman Kind and Congressman Stenholm. Gentlemen, thank you.

If any of the members would like to make any opening statements this afternoon, I would entertain them.

Senator Bingaman.

[The letter from Senator Allard follows:]

November 17, 2003.

Hon. PETE V. DOMENICI,
Committee and Natural Resources, U.S. Senate, Dirksen Senate Office Building, Washington, DC.

DEAR MR. CHAIRMAN: As you know, the western United States continues to suffer through a sustained period of unprecedented drought. Large portions of my home state of Colorado are in the midst of a fourth year without adequate moisture. While state efforts to provide the appropriate relief continue, the federal government must act cooperatively with the states to bolster drought mitigation efforts where such federal involvement is appropriate. Appropriate action includes federal aid in dealing with invasive plant species—one of the largest culprits of water theft.

The expansion of a variety of invasive plant species known as phreatophytes threatens more than the natural plant mix and wildlife forage. Phreatophytes, including the Salt Cedar (or Tamarisk) consume vast amounts of water and degrade the natural environment. For example, the Tamarisk is known to consume more than 200 gallons of water a day and may lead to high salinity levels in rivers and soil. They also alter the natural course of the river through a root system that grows some 250 feet down into the ground.

I commend your efforts to introduce legislation that creates new partnerships and funding to eradicate these invasive plants. Senator Campbell also deserves praise for his efforts as well. I am a strong supporter of the legislation and look forward to providing you with any assistance you should require. By working together, we

can develop a common sense approach to tackling the water theft by invasive plant species and ultimately restoring the health of our riparian systems.

Sincerely,

WAYNE ALLARD,
United States Senator.

STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

Senator BINGAMAN. Madam Chairman, let me just make a very brief statement. First, I welcome the two Congressmen here and support their efforts. I wanted to make a short statement about S. 213 that you mentioned. This is a bill that Senator Domenici and I have introduced. We did make some changes in it. It is intended to allow the city of Albuquerque to proceed with its plans to develop a biological park along the banks of the Rio Grande near downtown Albuquerque.

The city had acquired two parcels of land from the Middle Rio Grande Conservancy District in 1997 for the purpose of creating this park. Its plans were interrupted, however, when the Bureau of Reclamation later asserted that it held title to these two parcels, as well as various other property believed to be owned by the Middle Rio Grande Conservancy District.

The issue of title is in litigation and S. 213 does not interfere with that litigation. It merely directs the Bureau of Reclamation to transfer any interest it is determined to have in the two properties to the city of Albuquerque. As I understand it, the city already occupies these two parcels and it is considered to be surplus to the needs of the Middle Rio Grande Project.

Obviously, I am disappointed that the Bureau of Reclamation, through its testimony, appears to continue to oppose what we are trying to do. I do not know that that is helpful. I think this should be an easy matter to resolve and I think the legislation Senator Domenici and I have proposed is a good resolution. That is the main issue I wanted to address, Madam Chairman.

Senator MURKOWSKI. Thank you.

Senator Campbell.

STATEMENT OF HON. BEN NIGHTHORSE CAMPBELL, U.S. SENATOR FROM COLORADO

Senator CAMPBELL. Madam Chairman, I wanted to speak to the two tamarisk bills. Would it be better to do that now or when——

Senator MURKOWSKI. If you would like to do it now.

Senator CAMPBELL. All right. I will try and make it brief, too.

I want to welcome Congressman Kind and my old colleague Charlie Stenholm. It is nice to see you, Congressman Stenholm. We spent some years together on the Ag Committee when I was on the House side, and when I came over here some accused me of moving to the lower body, as you might guess. But it is always nice to see him.

Also, two of our witnesses from Colorado are going to be talking about this tamarisk problem, Tim Carlson and Mr. John Marshall, and I appreciate them being here, too.

You know, I was very unfamiliar with what this weed is, very frankly, before it was brought to your attention. I am sure Senator Domenici has probably had more experience with it. But I was ab-

solutely amazed, the amount of water this noxious weed uses. It is not a natural species. It was imported originally to the United States from the Orient as an ornamental tree.

It has a terrific appetite. Primarily it uses a significant amount of water, far more than I ever realized, than I think most people do.

We are experiencing a terrible drought in the West as you probably know, Madam Chairman. People have been selling their farms or ranches. People who have been ranching for generations have had to give that up. Many of us, including our little ranch, we had to drill new wells. Our wells went dry. Some people are simply going out of business.

Now, we cannot blame all that on the tamarisk obviously, but it has certainly been one of the contributing factors. Studies have found that this tamarisk, which is now in 11 Western States, uses from 2 to 4.5 million acre-feet of water a year, 2 to 4.5 million acre-feet of water a year that we simply cannot afford to lose.

To put it in perspective, several other States as well as Colorado and the Republic of Mexico, they are delivered 10 million acre-feet from Colorado's rivers and streams, including the mighty Colorado itself. California is allotted 4.5 million acre-feet of water per year. That means that this weed is eating up about the same amount of water under the interstate compacts that California gets out of the Colorado Upper Basin, Lower Basin compacts.

This bill that I introduced seeks to get that tamarisk problem under control. It requires the Secretary of the Interior to assess the extent of the tamarisk invasion, identify where it is and how it affects each State, and estimate the cost to restore the land and to establish a State tamarisk assistance program to provide States the needed funding to control and eradicate the tamarisk. Grant funds will be distributed to States in accordance with the severity of the problem in each State.

Water is a very, very scarce resource, as you know, Madam Chairman. So I am also a prime co-sponsor of Senator Domenici's bill. As I understand, it basically sets up a study that parallels what I am trying to do. I guess in my bill I am just trying to get the money to the States a little faster than in Senator Domenici's bill, but I think we are both going the same direction on these two bills.

Thank you for chairing this hearing.

Senator MURKOWSKI. Thank you.

Senator Domenici.

STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. Thank you very much.

I heard most of Senator Bingaman's statement and I do not want to repeat if I can help it. I want to particularly say that I am glad to see Debbie Hughes as one of the panelists. She has been an active advocate for salt cedar control. I look forward to her comments. It is also a pleasure to see Mike Gabaldon, a New Mexican serving in Washington at the Bureau.

The Western United States, while we have been gripped by a drought with its devastating impact on every kind of water use,

has the presence of these invasive plants like the salt cedar. They have helped to exacerbate the situation. These plants also move into newly exposed areas in dry reservoirs and thus, threaten our ability to recover by decreasing our water storage capacity. Even in wet years, these invasive plants have negative impacts. They invade agriculture, grazing land, etcetera.

Two of the bills we are going to discuss today were introduced to address the invasive plants, one Senator Campbell's, one mine. Mine is a demonstration bill to get on with it, taking a piece of the problem and solving it. The Senator's is more long-range. I am for combining the bills ultimately and hopefully getting the best possible bill for these invasive plants and their removal as possible.

I ask the remainder of my remarks on that be made a part of the record and conclude with a brief statement about the third bill, S. 213. Senator Bingaman spoke most about it, and I will merely say that the Albuquerque Biological Park Title Clarification Act is absolutely necessary. I know the administration has concerns—quiet title action. I have received a letter from the Middle Rio Grande Conservancy District, and we have a statement from the mayor of Albuquerque, both supporting our bill.

I look forward to working with the administration to address any of the concerns that they might raise here today, because we should proceed with this bill. I agree that it was introduced for the right reasons, Senator Bingaman joined in it for the right reasons, and we ought to join together in seeing that it gets done.

I ask that any remarks that are here that I did not give be included in the record and I yield at this time. Thank you very much, Madam Chairman.

[The prepared statement of Senator Domenici follows:]

PREPARED STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

I am grateful to Senator Murkowski for holding this hearing. Three of the bills to be discussed today matter greatly to the State of New Mexico.

I am particularly glad to see Debbie Hughes here as one of the panelists. She has been an active advocate for salt cedar control and I look forward to her comments. It is also a pleasure to see Mike Gabaldon—a New Mexican serving here in Washington at the Bureau of Reclamation.

The Western United States has been gripped by drought with its devastating impact on agriculture and municipal water supplies. The presence of invasive plants, like Salt Cedar, has exacerbated these dry conditions. These plants also move into newly exposed areas in dry reservoirs and thus threaten our ability to recover by decreasing our water storage capacity.

The dry conditions have also greatly increased fire danger. I personally witnessed the devastation of a fire that ravaged the center of the City of Albuquerque. The primary fuel and the greatest hindrance to fighting the fire was Salt Cedar.

Even in wet years these invasive plants have negative impacts. They invade into agriculture and grazing land and they displace native vegetation with its scenic, historic and environmental benefits.

Two of the bills we will discuss today were introduced to address the control of these invasive plants.

The first of these is S. 1516, the "Salt Cedar Control Demonstration Act" which I introduced in July with my colleague Senator Campbell. This bill authorizes the Department of the Interior to assess the full severity of this infestation. The Bureau is then directed to establish a series of research and demonstration programs to develop and test control strategies for this non-native species.

The second, S. 1236 "The Tamarisk Control and Riparian Restoration Act" was introduced by several of my western colleagues. Their bill addresses fundamentally the same issue but directs the Secretary of the Interior to create a grant program to provide funding to states for Tamarisk eradication.

My staff and I have reviewed much of the historical efforts and research on control of these plants. As a result, I am concerned that we have made large federal, state and private investments without a fully developed management strategy.

I believe we can move forward in an environmentally sensitive manner, that we can save water, that we can reduce fire danger and we can improve range conditions, but at the same time, we must do so in a smart and cost-effective manner.

That is why I have sponsored a bill leading to large, long-term demonstration projects. I believe this approach will develop and test management strategies to guide our long-term federal and state investments in Salt Cedar control.

These bills have received support from the State of New Mexico Department of Game and Fish, the large irrigation districts impacted by Salt Cedar infestation in New Mexico and environmental groups such as the Alliance for the Rio Grande Heritage.

As we hear from our panel, I look forward to hearing about the successes, the challenges and possible future approaches we can take to manage these invasive species.

The third bill of importance to the State of New Mexico is S. 213, the Albuquerque Biological Park Title Clarification Act. I know the Administration has concerns about the impact this bill will have on the pending litigation related to the Middle Rio Grande Conservancy District's quiet title action. I have received a letter from the Middle Rio Grande Conservancy District and we have a statement from the Mayor of Albuquerque both supporting this bill. I look forward to working with the Administration to address any of the concerns they might raise here today.

Senator MURKOWSKI. Thank you, and those remarks will be included in the record. Thank you, gentlemen.

With that, Congressman, again welcome to the subcommittee. Glad to have you here. At this time why do we not proceed with Congressman Kind.

STATEMENT OF HON. RON KIND, U.S. REPRESENTATIVE FROM WISCONSIN

Mr. KIND. Thank you, Madam Chairman and members of the committee. I appreciate your interest in the legislation that we are here to talk about today, H.R. 961, and I would encourage your support of the bill. I want to also thank your staff, who has worked closely with mine in regards to scheduling this. I want to give a special thanks to my staff, who has put in a lot of time and effort in order to coordinate this legislation and work on the bipartisan support that it has received.

This has passed the House of Representatives on two previous occasions, both in the 107th with unanimous consent and now in the 108th earlier this year by a 411 to 13 margin. Bipartisan support of this magnitude is a rarity these days, unfortunately, but I think it speaks to the effort that many of us have been putting into this legislation.

I also want to thank the members of the bipartisan Mississippi River Caucus, who has been very involved with this legislation too and have expressed a lot of support and put a lot of energy of their own in crafting the bill.

The bill itself is designed to enhance the existing monitoring programs on the Upper Mississippi River Basin and provide reliable, scientific data for targeting future nutrient and sedimentation reduction efforts. I mentioned the bipartisan support that it has received in Congress. I think it is a recognition of the importance of the Mississippi River, the river basin, the entire watershed area, in regards to middle America.

I believe it is one of the great neglected natural resources that we have in this country. It is nothing short of a national treasurer,

the Upper Mississippi River Basin, particularly the Upper Midwest, and the river that provides the fertile plains for agriculture that we have there, the primary drinking source for about 22 million Americans. It is also North America's largest migratory route, with about 40 percent of the waterfowl species using that as their route during the annual migration patterns every year.

The Upper Mississippi region benefits from the river and the basin with a $1.2 billion recreation impact, a $6.6 billion economic impact. One of the unique features is its multiple use function, not only for river navigation with the barge traffic going up and down delivering goods to market, but the recreation and the various other economic development activities that the river provides.

You are also going to hear testimony shortly from Holly Stoerker, who is the executive director of the Upper Mississippi Basin Association. That is a collaboration of mainly the five Upper Mississippi States who are working in partnership much closer in addressing the needs of the river basin.

You will also hear from Bob Hirsch, who is with USGS, which is the principal lead agency envisioned in this legislation.

The purpose of the bill again is to develop a coordinated public-private approach to reducing nutrient and sediment losses in the Mississippi River Basin. It is one of the great threats that the river itself faces. You talk to any of the scientific experts who have devoted a lot of time in regards to the preservation and protection of this ecosystem, they all point to one of the great threats that is facing it and that is the amount of sediments and nutrients flowing into the river basin, destroying wildlife habitat, affecting the quality of water supplies and the natural habitat that relies upon it for its existence.

This bill relies on existing Federal, State, and local programs. The bill establishes a water quality monitoring network and an integrated computer modeling program. These monitoring and modeling efforts will provide the baseline data needed to make scientifically sound and cost-effective decisions.

Additionally, the bill contains provisions to protect the privacy of personal data that is collected in connection with the monitoring and the assessment activities. The bill recognizes the need for scientific research on a sub-basin scale, enables sensible and effective strategies to be developed, and ensures that more local and regional support will be gained for those efforts.

The bill also is consistent with the recommendations made with the Federal Inter-Agency Mississippi River, Gulf of Mexico Watershed Nutrient Task Force that released the report in January 2001. Part of the recommendations in that report is having a much more extensive comprehensive monitoring and computer modeling program in place along the basin, particularly the Upper Mississippi region, so we can better track to nutrient and sediment flows going in and obviously flowing south and having an effect with regards to the hypoxia area that has been created down in the Gulf of Mexico.

A number of States have also weighed in on the need to increase monitoring and modeling efforts throughout the Upper Mississippi Basin. In a October 23, 2001 a letter to the Bush administration officials, six governors of States bordering the Mississippi River

wrote, and I quote: "A monitoring effort conducted jointly by USGS and the States is required within the basin to determine the water quality effect of the actions taken and to measure the success of efforts on a sub-basin and project level."

That is exactly the intent of this legislation, what we are trying to accomplish with this bill. Again, with the bipartisan support that it has enjoyed on the House side, I am hoping it will receive similar consideration here in the Senate. I can sit here and honestly testify that I am not aware of any individual or group that is in opposition to this legislation.

Bob Hirsch will be testifying. I do not need to speak for him, but the issues that he raised in previous testimony in the House I think we have addressed fully. But you can hear from him specifically.

Thank you again for the opportunity to address the committee on this important piece of legislation, and we hope for your support. Thank you.

[The prepared ststement of Mr. Kind follows:]

PREPARED STATEMENT OF HON. RON KIND, U.S. REPRESENTATIVE FROM WISCONSIN

Thank you Madam Chairman and members of the Subcommittee for the opportunity to comment on H.R. 961, the Upper Mississippi River Basin Protection Act. This bill was designed to enhance existing monitoring programs on the Upper Mississippi River Basin, and provide reliable, scientific data for targeting future nutrient and sediment reduction efforts. I'm pleased to note this legislation has repeatedly received broad support in the House—passing that body in the 107th Congress with unanimous consent, and again in the 108th by an overwhelming vote of 411-13.

The Upper Mississippi River system, whose tributaries and basin encompass much of Wisconsin, Minnesota, Iowa, Illinois, and Missouri, is widely recognized as one of our nation's great multi-use natural resources. While the Mississippi River and its tributaries provide drinking water to approximately 22 million Americans, the system's 1,300 navigable miles transport millions of tons of commercial cargo via barges. In addition, 40% of North America's waterfowl use the wetlands and backwaters of the main stem as a migratory flyway, illustrating the environmental significance of the system as well as recreation capabilities. Overall, the Upper Mississippi River Basin provides $1.2 billion annually in recreation income and $6.6 billion to the area's tourism industries.

Unfortunately, high sediment and nutrient levels threaten the health of the river system and the vast recreational, agricultural, and industrial activities it supports. Sediment fills the main shipping channel of the Upper Mississippi and Illinois Rivers, costing over $100 million each year to dredge. Nutrient inputs degrade water quality in the Upper Mississippi River system and impact far downstream to the Gulf of Mexico.

As a basis for making effective decisions for improving water quality, accurate data must be available. Building the nutrient and sediment monitoring system that provides this data will require extensive communication and coordination between government agencies at the federal, state, and local levels, as well as other stakeholders. By utilizing existing monitoring programs to the maximum extent possible, H.R. 961 builds upon existing efforts by authorizing the U.S. Geological Survey (USGS) to coordinate and integrate these efforts, expand where necessary, develop guidelines for data collection and storage, and establish an electronic database system to store and disseminate information. USGS would also establish a state-of-the-art computer modeling program to identify significant nutrient and sediment sources, at the subwatershed level, to better target reduction efforts. In addition, H.R. 961 includes strong protections for the privacy of personal data collected and used in connection with monitoring and modeling activities.

H.R. 961's goal of coordinating and collecting scientific research on a sub-basin level will enable sensible and effective strategies of minimizing sediment and nutrient runoff far beyond the five-state region, and ensure that more local and regional support will be gained for those efforts.

Furthermore, the sub-basin approach of The Upper Mississippi River Act fits with the recommendations of the federal interagency Mississippi River/Gulf of Mexico Watershed Nutrient Taskforce, released in a report to Congress in January of 2001. In the "Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico," the Task Force notes that water quality throughout the Mississippi River Basin has been degraded by excess nutrients, and that most states in the basin have significant river miles impaired by high nutrient concentrations that can be a human health hazard. That Action Plan also outlines a series of short- and long-term goals, including sub-basin coordination and implementation of sediment and nutrient reduction efforts, and expanding existing monitoring and modeling efforts to identify additional management actions to help mitigate nitrogen losses to the Gulf.

In crafting this legislation, I have worked closely with farmers, the navigation industry, sporting groups, environmental organizations, and government agencies throughout the region. As co-chair of the bipartisan Upper Mississippi River Basin Congressional Task Force, I have also labored to build consensus among regional legislators and governors on how best to approach the natural resource challenges of the basin.

In response to my efforts, a number of states have signaled their support for increasing monitoring and modeling efforts throughout the Upper Mississippi River Basin. In an October 23, 2001, letter to Bush Administration officials, six Governors of states bordering the Mississippi River wrote that, ". . . a monitoring effort conducted jointly by the U.S. Geological Survey and the states is required within the basin to determine the water quality effects of the actions taken and to measure the success of efforts on a sub-basin and project level."

As this Subcommittee knows well, water quality problems in the Mississippi River Basin cross traditional state and administrative boundaries. Solving these problems requires a coordinated and cooperative approach between the federal, state, and local agencies and groups working throughout the region. H.R. 961 represents a common-sense move toward building the scientific foundation necessary to remedying nutrient and sediment problems in the region, and may ultimately serve as a model for future watershed and basin initiatives in other parts of the nation.

Thank you for the opportunity to share my remarks on this important legislation. I appreciate your consideration and I urge the Subcommittee's support.

Senator MURKOWSKI. Thank you. It is always nice to find there is something that nobody disagrees with. We will see if that is the case.

Congressman Stenholm, welcome.

STATEMENT OF HON. CHARLES W. STENHOLM, U.S. REPRESENTATIVE FROM TEXAS

Mr. STENHOLM. Thank you, Madam Chairman. I thank this committee for allowing me the privilege of testifying before you today.

I commend this committee for taking such swift action on H.R. 856, legislation I introduced on February 13 of this year. The bill extends the repayment period on a loan contract between the Tom Green County Water Control and Improvement District No. 1 and the Department of the Interior and the Bureau of Reclamation. The district has an outstanding loan for construction of an irrigation canal and the remaining balance is approximately $2.4 million.

These farmers in the water control district have made diligent efforts to make timely payments on the contract and have paid about $1.5 million of the original debt owed despite the fact that they have yet to receive a fair return on their investment. The increased annual payments place additional financial burdens on the water control district. However, the Bureau of Reclamation cannot extend the loan repayment contract without approval from Congress.

Because of this, I introduced H.R. 856 to get this loan restructured and provide the much-needed financial relief for these farmers. This legislation would allow the Secretary of the Interior to re-

vise the repayment contract by extending the period authorized for repayment of construction costs of the canal from 40 to 50 years.

In west Texas there is virtually nothing of higher daily concern than the availability of water and, much like many parts of the United States in recent years, Texas has been devastated by drought. As a result, these farmers have received a full year's allocation of irrigation water only 50 percent of the time. Moreover, for the other 50 percent of the time they received either less than the annual allocation or no irrigation water at all, but still have made their payments.

Despite that, payment on the debt has never been forgiven, even in years when they received no water. Deferments have been granted several times. However, those payments still have to be made, which the farmers fully intend to do.

Compounding the problem, these deferments were added to the remaining loan balance and the payments continue to increase annually because the original contract termination date does not change.

I am happy to report that these west Texas farmers have been doing their part to meet their responsibilities and I am glad Tom Green County Commissioner Clayton Friend brought this issue to our attention. I am also very appreciative of the consideration of this committee which you are giving it. At this time I would like to submit Mr. Friend's testimony for the record, and I am glad to do so on his behalf.

I have high hopes that we will be able to get this legislation to the President very soon.

Additionally, I would commend this committee for taking such swift action on S. 1516, the Salt Cedar Control Demonstration Act introduced by Senator Domenici. Congressman Steve Pierce and I have worked together to introduce companion legislation in the House of Representatives. The effects of salt cedar and Russian olive invasion can be seen in more than half the continent of the United States. As you may know, I represent the 17th District of Texas, central west Texas. As much of America, drought has left its mark. During the abnormally dry conditions, salt cedar proliferated in this area when receding water left ideal conditions for growth of this invasive plant.

The devastating results evident throughout the Upper Colorado River Basin have become more acute in recent years as this invasive species has severely diminished the availability of fresh water supply in west Texas. I am convinced this legislation moves in the right direction toward real solutions to the salt cedar and Russian olive invasion. After all, it will take integrated control and management practices to significantly deter further spread of this non-native species. The fact remains, to minimize the wasteful reduction in our Nation's water supply Congress must take immediate action to implement a control plan for salt cedar.

I thank you for allowing me to testify and I hope that you can give good consideration to both of these matters. Thank you, Madam Chairman.

Senator MURKOWSKI. Thank you.

Congressman Kind, with the legislation that you have introduced you have highlighted the benefits for industry and transportation

and the environment. The Mississippi and the Missouri systems are frequently the subject of conflict over competing needs. Can you help us understand how this monitoring program will help resolve rather than create additional conflict over the shared water resources of the Upper Midwest?

Mr. KIND. Well, Madam Chairman, I appreciate the question. is all basically getting the scientific research in place so we can better track and monitor the sediment and nutrient flows that are entering the Upper Mississippi Basin and obviously affecting everything flowing south. It is something that the States, the Governors, the various task forces that have been formed to address the ecosystem needs of this valuable river basin have been calling for for some time.

I do not view this legislation as providing any type of conflict between the Mississippi itself or the Missouri River. If there is one issue that perhaps we can talk about, it is the extent of the legislation. It is limited to just the Upper Mississippi River States, the five Upper Mississippi States. There has been some discussions already within my office with other groups and organizations of this serving as a model for an extension in other watershed areas, but especially throughout the entire Mississippi River Basin.

This approach is kind of the baby step of trying to get it in place initially to see how well it works before we talk about extending it throughout the entire river basin area, which I think is also necessary and should occur in the future, too. But right now this is kind of a limited approach to try the get the good science in place so we can start doing the monitoring and establish the computer models in the Upper Miss region, which also will benefit the lower Mississippi Basin.

I think it is a practical approach, given the limitation of resources that we have right now in the budget and the cost-share arrangements with the various States that are required with the legislation.

Senator MURKOWSKI. I thank you for that response.

Congressman Stenholm, the Tom Green County Water Control Improvement District has apparently struggled with their water supply for a number of seasons, and of course we are sensitive to the needs of the farmers. It is my understanding that the administration is supportive of this legislation. Do you have any specific requests or suggestions for the administration to guide their additional activities in the farming community in the Tom Green County? Since you have the floor here, you may as well provide them with whatever input you have.

Mr. STENHOLM. Yes. Yes, ma'am, surely would, Madam Chairman. That is why I mentioned in my statement integrated approaches. I think we are looking all throughout this region, because the San Angelo area in this particular part of west Texas has a terrific water shortage. We are talking about if the good lord does not send the rain within the next couple of years that we are going to be really struggling for drinking water.

There are many projects going on right now with the Corps of Engineers looking at a study that is looking where we might find the water and bring it to it. But on specifically the purpose of the hearing today, we have a mesquite control project that is ongoing

in Texas that has been partially funded by the State of Texas, partially funded by the individual producers within this area, and partially funded by the Federal Government, and that was part of the farm bill, the EQIP program that passed last year.

The key to any of these type projects is getting the support of the producers within the area. There has been a tremendous amount of effort going on the part of the ranchers in that area to gain the kind of support of the individual ranchers required to not only start the project—now I am talking about mesquite—but then also the maintenance that is going to be required, because if you do not have a regular maintenance program in which you commit long-term to how you are going to, once you get the mesquite under control, that you will then continue to keep it under control as part of a regular conservation program, which is part of the farm bill.

The salt cedar is exactly the same as mesquite and I think we are using the same model, and I feel quite certain that, even though here we are talking about the Interior and the Bureau of Reclamation, there is now a growing spirit of cooperation between USDA and all of the Federal agencies, recognizing that we can do a better job with less of our taxpayer dollars by having a cooperative venture between government and the local ranchers with the proper role of the State.

So yes, I would encourage that spirit of cooperation to continue, which we have seen, ironically, in parts of my district on flood control, while at the same time in other areas we are talking about doing something about the drought, and it is only 120 miles between the two.

Senator MURKOWSKI. Thank you.

Senator Campbell, any questions for either Congressmen Kind or Stenholm?

Senator CAMPBELL. It would not make much sense, but I read somewhere that mesquite is actually spread in Texas by cattle, that they eat the mesquite, that the beans are not digested or something, and so they are spread and then they grow. You also heard about our salt cedar bills and our tamarisk bill. Do you know, do cattle eat that as well as mesquite?

Mr. STENHOLM. I do not believe that the salt cedar, the cattle eat that. I wish they did. But they do not eat the mesquite, but they like the mesquite beans. And when you have a drought period, the mesquite tree puts out an inordinate amount of mesquite beans, and many times that is all that has been able to get our cattle through a drought, because we feed them. And unfortunately, the seeds do pass through the animal and then do get spread, and that is part of the invasive species that we are trying now to deal with.

Senator CAMPBELL. The only reason I knew something about that is I read the history of the King Ranch one time and it mentioned that problem with mesquite. Thank you.

Thank you, Madam Chairman.

Senator MURKOWSKI. Thank you.

Gentlemen, thank you for your testimony this afternoon.

Mr. STENHOLM. Thank you.

Senator MURKOWSKI. The next panel we will bring up: Mr. Gordon Brown, the Invasive Species Coordinator from the U.S. Department of the Interior; Mr. Michael Gabaldon, Director of Policy

Management, Bureau of Reclamation; and Mr. Bob Hirsch, the Associate Director of the U.S. Geological Survey for the Department of the Interior.

Good afternoon, gentlemen. Mr. Brown, why do we not start with you, please.

STATEMENT OF A. GORDON BROWN, INVASIVE SPECIES COORDINATOR, LIAISON TO THE NATIONAL INVASIVE SPECIES COUNCIL, DEPARTMENT OF THE INTERIOR

Mr. BROWN. Madam Chairman and members of the committee, I am Gordon Brown, Invasive Species Coordinator for the Secretary of the Interior. Dr. Jim Tate was looking forward to testifying today, but I am sorry to report that while helping a neighbor stow his canoe on Thursday as the winds began to blow he broke his leg after a fall. He is still in the hospital with a broken femur.

I want to thank you for providing the Department of the Interior the opportunity to testify before you regarding these bills which seek to promote the assessment, management, and restoration after control of salt cedar or tamarisk and Russian olive. The Department supports the goals of both S. 1236, the Tamarisk Control and Riparian Restoration Act, and S. 1516, the Salt Cedar Control Demonstration Act.

The Department is currently working with partners to develop an integrated approach to management of tamarisk and we are committed to working with you to ensure that tamarisk control efforts are efficient and effective. We are also concerned about the cost of the proposed programs and note that they would have to compete with existing programs for limited resources.

Let me begin by providing you with some background on this issue, followed by brief comments on the legislation. The Department is one of the Nation's principal conservation agencies, charged with protecting and providing access to our Nation's natural and cultural heritage. Today departmental authorities provide for the management and protection of resources in an area of the West now increasingly under pressure as population densities mushroom and water resources are increasingly stressed. This region of the country also has seen the greatest impact from the species addressed in this legislation.

Russian olive is a hearty, fast-growing tree native to Europe and Western Asia. It is shade-tolerant and grows well in a variety of soil and moisture conditions and, while it is primarily found in the West, it is also present in the East. Its large seeds result from trees that mature very early.

Tamarisk comprises a suite of several species which also hybridize in the United States. They have been imported for use as windbreaks and erosion control plantings and now cover approximately 1.6 million acres of riparian lands within all the 17 Western States as far north as Montana. It rapidly produces dense biomass and suppresses native plant seed germination and seedling growth, spreading widely by overbank flooding that can transport millions of tiny seeds.

Limited studies suggest that dense tamarisk stands can utilize more water on an annual basis than native cottonwood-willow plant communities. There can be more total surface area on the

leaves of tamarisk plants than on the cottonwood and native shrubs growing in a given area and thus tamarisk continues—and tamarisk continues to release water through the pores in its leaves during midday, when others have shut down that process.

In addition, tamarisk growing in a streambed can also slow the water flow, thus allowing additional time for percolation of the water into the alluvium. Water released for irrigation purposes from an upstream reservoir may thus not get to its intended destination when tamarisk is blocking the channel.

The growing abundance of tamarisk along Western rivers has led resource managers to seek to control it in order to, one, increase the flow of water in streams that might otherwise be lost to evaporation and transpiration and percolation; to restore the native vegetation along the banks and flood plains of those rivers; and to reduce hazardous fuels; and to improve wildlife habitat.

As you know, the Department through the Bureau of Reclamation has a significant role in the distribution of water throughout much of the West and Southwest. Because of its significant impact on water resources alone, the Department has a strong interest in the control of tamarisk as part of its management efforts. For this reason, much of the remainder of my statement will focus on control efforts for the species.

Current departmental programs and activities focus control and management efforts for tamarisk on areas where the resource is at risk. Some areas are so heavily infested that expert strike teams have been used to remove the dense vegetation. For example, the U.S. Fish and Wildlife Service is in the process of establishing such strike teams modeled after the National Park Service's Exotic Plant Management Teams.

All of these activities are conducted with observation of comprehensive conservation and planning, and that is to take account for the highest priority waterfowl, endangered species, or other wildlife habitat values. This early detection and rapid response model is receiving increased attention as a means of preventing the spread and establishment of tamarisk and restoration and ongoing monitoring to prevent reinfestation are essential.

Departmental land management operations focus significant funding for tamarisk control on refuges, national parks and monuments, along irrigation canals under the jurisdiction of the Bureau of Reclamation. Bosque del Apache National Wildlife Refuge has served as a demonstration laboratory for control and management of tamarisk, including research and development of innovative methods for restoring native riparian vegetation and working with nearby private landowners and Indian tribes to implement them.

Biomass removal, intermittent flooding, chemical treatments, and other mechanical methods have all been tested and measured for effectiveness and efficiency. Cooperating with researchers from nearby universities and other research institutions such as the Los Alamos National Laboratory, scientists and land managers have also tested methods to reduce the likelihood of later reinfestation.

Various other programs within the Department seek to promote partnership on a broad basis. One of them includes the challenge cost share components of Bureau of Reclamation, National Park Service, and Fish and Wildlife Service. The Fish and Wildlife Serv-

ice's Partners for Fish and Wildlife Program promotes private landowner cost share projects, as does BLM in its programs.

USGS scientists can help identify site potential for water salvage, revegetation and wildlife value and develop protocols and measures for prioritizing sites for control or revegetation. The USGS also has partnerships with NASA, the Tamarisk Coalition, and these are aimed at providing mapping information to identify new invasions.

In conclusion, I want to assure the committee that the Department is prepared and committed to identifying, assessing, and acting to curb the economic and ecological impacts of tamarisk and Russian olive in the West. We will continue to work with our partners. Tamarisk is risky business, however. While providing some cover for wildlife in the arid Southwest, absent widespread control and restoration efforts to eliminate it we will continue to be frustrated in our science and conservation mission to assure future use of our Nation's natural resources.

We share the committee's concerns and offer to work with the committee to ensure that any legislation promotes an efficient and effective control strategy.

Madam Chairman, this concludes my statement and I am happy to answer any questions that you might have.

[The prepared statement of Mr. Tate, follows:]

PREPARED STATEMENT OF JIM TATE, SCIENCE ADVISOR TO THE SECRETARY OF THE INTERIOR, DEPARTMENT OF THE INTERIOR

Mr. Chairman and Members of the Committee, I am Jim Tate, Science Advisor to Secretary of the Interior Gale Norton. I want to thank you for providing the Department of the Interior (Department) the opportunity to testify before you regarding these bills which seek to promote the control and management of the invasive species like saltcedar, or tamarisk, and Russian olive. The Department supports the goals of both S. 1236, the Tamarisk Control and Riparian Restoration Act, and S. 1516, the Salt Cedar Control Demonstration Act. As discussed below, the Department is currently working with our partners to develop an integrated approach to management of tamarisk, and we are committed to working with you to ensure that tamarisk control efforts are efficient and effective. We are also concerned about the cost of the proposed programs, and note that they would have to compete with existing programs for limited resources.

Let me begin by providing you with some background on this issue, followed by brief comments on the legislation.

BACKGROUND

In the late 19th century, importation of several species of the genus *Tamarix*, commonly called tamarisk, and Russian olive came just as the Department began efforts to mediate land speculation and work closely with western governors and Indian tribes during the settlement of the West. The scientific expeditions of John Wesley Powell (which carried out the Geographical and Geological Survey of the Rocky Mountain region in 1874) set in motion the still-evolving paradigm that wise development informed by science provides the best hope for conservation and future use of our Nation's natural resources.

The Department is one of the Nation's principal conservation agencies, charged with protecting and providing access to our Nation's natural and cultural heritage. Today, Departmental authorities provide for the management and protection of resources in an area of the West now increasingly under pressure as population densities mushroom and water resources are increasingly stressed. This region of the country also has seen the greatest impact from the species addressed in this legislation.

SCOPE OF THE PROBLEM

Russian olive is a hardy, fast-growing tree native to Europe and western Asia. It was introduced into the United States in the 19th century and was promoted as

windrow and ornamental plantings. It grows along streams, in fields, and in open areas. It is shade-tolerant, and it grows well in a variety of soil and moisture conditions. While Russian olive is primarily found in the West, it also is present in the Eastern United States.

Tamarisk comprises a suite of several species also imported to the United States in the 19th century for use as windbreaks and erosion control plantings. Several species of tamarisk and their hybrids now cover approximately 1.6 million acres of riparian lands within all the seventeen western states (as far north as Montana). The spread of tamarisk is often supported by its extreme flammability. It rapidly produces dense biomass and, absent flooding or heavy rains, causes deposits of salt on the soil sufficient to suppress native plant seed germination and seedling growth.

Limited studies suggest that dense tamarisk stands can utilize more water on an annual basis than native cottonwood-willow plant communities. There can be more total surface area on the leaves of tamarisk plants than on cottonwood and native shrubs growing in a given area, and tamarisk continues to release water through the pores in its leaves during mid-day, whereas native cottonwoods shut this process down to conserve water. In addition, tamarisk growing in the streambed can also slow the water flow, allowing additional time for percolation of the water into the alluvium. Water released for irrigation purposes from an upstream reservoir may thus not get to its intended destination when tamarisk is blocking the channel.

The growing abundance of tamarisk along western rivers has led resource managers to seek to control it in order to: (1) increase the flow of water in streams that might otherwise be lost to evapotranspiration and percolation; (2) restore native vegetation along the banks and floodplains of rivers and shorelines of reservoirs or lakes; (3) reduce hazardous fuels; and (4) improve wildlife habitat.

As you know, the Department, through the Bureau of Reclamation, has a significant role in the distribution of water throughout much of the West and Southwest. Because of its significant impact on water resources alone, the Department has a strong interest in the control of tamarisk as part of its management efforts. For this reason, much of the remainder of my statement will focus on control efforts for this species.

CURRENT DEPARTMENTAL TAMARISK MANAGEMENT EFFORTS

Current Departmental programs and activities focus control and management efforts for tamarisk on areas with resources at risk. Some areas are so heavily infested that expert "strike" teams have been used to remove the dense vegetation. For example, the U.S. Fish and Wildlife Service (FWS) is in the process of establishing such "strike teams," modeled after the National Park Service's (NPS) Exotic Plant Management Teams (EPMT), to combat invasive species, including tamarisk, in the Southwest. Areas vital to wildlife resources are cleared using mechanical, chemical, and physical means. Comprehensive conservation plans are used to guide these efforts and to indicate the areas of highest priority for waterfowl, endangered species, or other wildlife habitat values. In some cases, resources potentially at risk from tamarisk incursion are spot-treated early enough to keep the plants away, thus avoiding costly control efforts. This early detection and rapid response model is receiving increased attention as a means of preventing the spread and establishment of tamarisk.

PLACE-BASED RESEARCH AND TESTING

Departmental land management operations focus significant funding for tamarisk control on refuges, national parks and monuments, and along irrigation canals under the jurisdiction of the Bureau of Reclamation. Bosque del Apache National Wildlife Refuge has served as a demonstration laboratory for control and management of tamarisk, including research and development of innovative methods for restoring native riparian vegetation and working with nearby private landowners and Indian Tribes to implement them. Biomass removal, intermittent flooding, chemical treatments, and other mechanical methods have all been tested and measured for effectiveness and efficiency. Cooperating with researchers from nearby universities and other research institutions, such as the Los Alamos National Laboratory, scientists and land managers have also tested methods to reduce the likelihood of later re-infestation by tamarisk.

Because of our role in the management of Western lands, we recognize the need for on the ground management of invasive species like tamarisk. However, we also recognize that there are areas where our control and restoration efforts will benefit from targeted research and development projects. More information is needed regarding the identification of areas or situations that would most likely respond to vegetative restoration projects once tamarisk removal has begun. Such information

will also assist in the development of an integrated control and restoration plan a "best practices" plan that will provide land managers at all levels of government with options for removal, control, and restoration of lands infested with tamarisk.

PROGRAMS TO PROMOTE PRIVATE PARTNERSHIPS

Various programs within the Department seek to promote partnerships with private landowners to address problem species like tamarisk. One initiative that addresses these issues is the cooperative conservation component of the challenge cost share programs in the Bureau of Land Management (BLM), NPS and FWS. These programs emphasize building partnerships for the conservation of natural resources and provide expanded opportunities for land managers to work with landowners and others to form creative conservation partnerships. This initiative recognizes that nature knows no jurisdictional boundaries and that, through these partnerships, the Department's land managers can work with landowners and other citizen stewards to tackle invasive species, reduce erosion along stream banks, or enhance habitat for threatened and endangered species. Among other things, in FY 2003 we have funded through this initiative projects that are aimed at the eradication and control of tamarisk, Russian olive, and other invasive plants, and reclamation of impacted lands.

Another program is the FWS's Partners for Fish and Wildlife, which promotes private landowner cost-share projects for habitat restoration, including funds targeted for control of invasive plants and subsequent restoration. The Partners Program has worked with private landowners across the Nation to remove, burn, biologically control, and otherwise combat invasive plants on thousands of acres of wetlands and upland. Tamarisk control is a focus of technical and financial assistance in the Southwest.

The control and management of tamarisk is part of the BLM's Partners Against Weeds Strategy Plan, BLM's Strategic Plan, and the National Fire Plan. The Partners Against Weeds program funds cooperative efforts with landowners to control invasive species. It also funds cooperative outreach and education projects with schools and local and county governments. In one important project, the BLM plans to work with several groups, including Clark County and the communities of Bunkerville and Mesquite in southern Nevada, to remove tamarisk along portions of the Virgin River floodplain. As I noted above, because of its properties, tamarisk poses a potential fire risk to homes, ranches, farms, and recreational facilities in the wildland-urban interface.

This project involves mechanical removal of tamarisk in the project area. The goal of the project is to move away from the tamarisk-fueled, high intensity fires that are now typical of the area concerned and to restore native vegetation, such as the relatively inflammable grasses, sedges, shrub communities, cottonwoods, and willows. Current planning calls for 95 acres of treatment in FY 2004, with an additional 100 acres per year during the following 7-8 years.

The NPS, U.S. Geological Survey (USGS), and the Bureau of Reclamation partner with the Agriculture Research Service and the U.S. Forest Service, both within the Department of Agriculture, and university scientists to develop and test biological control agents, including the beetles used for biological control of tamarisk in the West, to conduct studies of stream flow management for vegetation control, and on studies of hybridization and environmental tolerances to better predict the potential future spread of tamarisk.

USGS scientists can help identify site potential for water salvage, revegetation, and wildlife value, and develop protocols and measures for prioritizing sites for control or revegetation. The USGS also has partnerships with state and county weed departments, the National Aeronautics and Space Agency (NASA), and the Tamarisk Coalition aimed at mapping currently invaded sites and identifying new invasions. The USGS also has ongoing studies mapping tamarisk in Western Colorado and Southern Utah, relating its distribution to environmental factors at USGS stream gauging stations throughout the West, assessing vegetation changes over time in tamarisk habitat on the lower Colorado River, and promoting restoration of native vegetation through water management.

The Bureau of Reclamation leads, along with USDA's Agricultural Research Service, the Saltcedar Biological Control Consortium, a task force comprised of over 40 agencies. The Bureau of Reclamation, in collaboration with Los Alamos National Laboratory, also develops new technologies for determining the amount of water lost from the Rio Grande River due to tamarisk.

CROSSCUT BUDGET FOR FISCAL YEAR 2004

The Administration is also working toward an interagency approach to invasive species control. The President's Budget Request for Fiscal Year (FY) 2004 contains a performance budget crosscut on tamarisk. Agencies would work together to develop common performance measures. Under this performance umbrella, new and base funds will be applied in the Departments of Interior and Agriculture to control and manage the spread of tamarisk in the Southwest. Within the Department, the BLM proposes to control 2,750 acres of tamarisk with a $500,000 funding increase. The Bureau of Reclamation, utilizing $600,000 in new funding, proposes to control 22,000 acres of tamarisk. The FWS has proposed an increase of $640,000 for treatment of tamarisk and other species on refuge lands, and the NPS, utilizing $200,000 in base funding, proposes to treat 1,000 additional acres. A proposed funding increase of $100,000 will help the Bureau of Indian Affairs control tamarisk on 4,000 acres. Finally, USGS proposes an increase of $300,000 for two additional research projects in direct support of land management efforts, including the development of protocols and measures to prioritize sites for control and revegetation efforts.

In addition, both Interior and Agriculture agencies are working together with our state and local partners to develop and implement control technologies as part of an integrated approach to pest and weed management. New chemical and biological control methods for tamarisk are being tested under strictly controlled conditions because the endangered southwest willow flycatcher occupies areas now infested with tamarisk that were once occupied by stands of native willows and cottonwoods. The federal agencies are providing support for a multi-pronged approach to tamarisk control utilizing prevention, early detection and rapid response, and other control and management activities to limit the introduction and spread of tamarisk into new areas of the Southwest.

COORDINATED TAMARISK CONTROL AND REVEGETATION WORKSHOP

As a means of deciding how to spend the FY 2004 funds proposed in the President's Budget for tamarisk control, the Department is considering a strategy workshop to be held in the West sometime this fall. The purpose would be to gain stakeholder input for a roadmap containing common protocols (decision criteria) and best practices for tamarisk control and management. The roadmap would provide guidance for selecting on-the-ground projects and research efforts with the twin goals of generating increased water supply and restoring ecosystems through long-term tamarisk control, revegetation, and habitat recovery.

DEPARTMENTAL VIEWS ON S. 1236 AND S. 1516

I hope that this overview has provided you with a picture of what the Department is doing to manage the control of tamarisk and other harmful exotic species. With the above discussion in mind, let me briefly turn to the legislation.

S. 1236 would require the Secretary of the Interior (Secretary), through the Bureau of Reclamation, to complete an assessment of the extent of tamarisk invasion in the western United States. In addition to identifying the states affected by tamarisk, including a gross-scale estimation of acreage within the identified states, the assessment would include both past and ongoing research on tamarisk control methods, and the estimated costs of destruction, biomass removal, and restoration and maintenance.

The Secretary would also establish a State Tamarisk Assistance Program to provide grants to affected states. Grants would be awarded to states in amounts to be determined by the Secretary based on infestation in a particular state. Those states would then be responsible for designating a lead state agency to administer the program and to work with listed entities, including the National Invasive Species Council, the Invasive Species Advisory Committee, representatives from relevant tribes, and others in the state, to establish priorities for awarding cost-share grants to projects to control or eradicate tamarisk. The bill carries a limitation (10 percent) on the use of grant monies for administrative expenses, and would require the lead state agency to provide the Secretary with a report at the completion of funded projects.

S. 1516, the "Salt Cedar Control Demonstration Act," would also establish a two-pronged approach. First, it would require the Secretary, through the Bureau of Reclamation, to complete a detailed assessment of the extent of infestation by salt cedar and Russian Olive in western states. The assessment would include past and present assessments and management options to control these species; the feasibility of reducing water consumption; methods and challenges in land restoration; and the estimated costs of destruction, biomass removal, and restoration and main-

tenance. Finally, the assessment is to identify long-term funding strategies that could be implemented by federal, state, and private land managers. Second, S. 1516 would also require the Secretary to initiate demonstration projects to determine the most effective control methods for these species, and it provides criteria to be included in the project designs.

We fully support the concepts advanced by these bills. In general, we view a comprehensive assessment positively, and believe such an approach helps federal land managers develop a more coordinated, long-term approach to addressing the problems associated with these species. We also recognize the importance of carrying out strictly controlled projects that will quickly provide us with practical control methods that can be used by land managers on the ground.

As noted above, however, the Department is already working with our partners to develop and implement an integrated approach to management of tamarisk. Moreover, we have a concern about the overall cost of the proposed legislation. S. 1236 would authorize $20 million for fiscal year 2004, with additional necessary sums thereafter, while S. 1516 would authorize $50 million on the same terms. While the Administration's cross cut budget evidences our commitment to control invasive species like those addressed here, the program established under this legislation would have to compete with other priority activities within the context of the President's Budget. Finally, the Department notes that the demonstration projects called for in S. 1516 can be achieved within existing authorities.

CONCLUSION

In closing, I want to assure the Committee that the Department is prepared and committed to identifying, assessing, and acting to curb the economic and ecological impacts of tamarisk and Russian olive in the West. We will continue to work with our partners, and we agree with the intentions of both bills to more systematically develop an effective control strategy. Our goal is to ensure the protection of our water resources and the restoration of important wildlife habitat.

We share the Committee's concerns and interest in this issue, and offer to work with the Committee to ensure that any legislation promotes an efficient and effective control strategy. Mr. Chairman, this concludes my statement and I am happy to answer any questions that you might have.

Senator MURKOWSKI. Thank you, Mr. Brown.

Let us go to Mr. Gabaldon.

STATEMENT OF MICHAEL GABALDON, DIRECTOR OF POLICY MANAGEMENT AND TECHNICAL SERVICES, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR

Mr. GABALDON. Thank you, Madam Chairman. Before I begin, I would like to request that my written statements be submitted for the record.

Senator MURKOWSKI. Certainly.

Mr. GABALDON. Thank you.

My name is Michael Gabaldon. I am the Director of Policy, Management, and Technical Services with the Bureau of Reclamation. I am pleased to be here today to present the views of the Department of the Interior on S. 213 and on H.R. 856.

Let me begin with S. 213, which would clear title to real property in New Mexico associated with the Middle Rio Grande Project. While my written testimony contains more detail, I would like to use my time to summarize my remarks.

The Department has some concerns with S. 213 as drafted, primarily that the dispute over ownership of the San Gabriel and the Tingley Beach parcels currently implicates a lawsuit pending before the U.S. District Court in the District of New Mexico.

The Department also has some concerns with the findings of section 2 in the bill. Contrary to the implication of section 2(a)(3) of the bill, the United States did not claim title to Tingley Beach and San Gabriel Park for the first time in 2000. Rather, until recently

the United States and the Middle Rio Grande Conservancy District had agreed for decades that title to all properties necessary for the Middle Rio Grande project had been conveyed to the United States.

For example, both the United States and the district filed several briefs with the U.S. Supreme Court in the fifties stating unequivocally that title had been transferred to the United States, and in the 1970's the district got a nuisance case involving the Middle Rio Grande project ditches and canals in the Albuquerque area, they got that dismissed on the basis that these properties had been conveyed to the United States.

The Department is not adverse to quit claiming any property interest it has to the city of Albuquerque. But all parties must agree on the venue and all applicable Federal laws must be met, must be met through the process. The Department believes that the prudent course of action would be to allow the legal system to render its decision before instituting a legislative remedy.

With respect to the city of Albuquerque's desires to make improvements on this property, Reclamation has provided a license to the city which allows the use of the land in the city's—for the use of the lands as proposed in the city's improvement plans. In addition to the license, Reclamation has met directly with members of the city planning department to facilitate the review of the city's proposed improvements for the Tingley Beach and we've also worked with other staff to assist them in that process.

Despite the disagreement between the district and the Bureau of Reclamation and the United States on this matter, the district has been a good partner on this project and has retired its debt to the United States. While we are always open to working with all interested parties to find acceptable solutions, we believe that it is in the best interests of all to wait for the court's decision on the quiet title claims.

In summary, because the title issue is in active litigation and because some inaccurate language appears in section 2, the Department cannot support S. 213 at this time.

I would now like to turn my attention to H.R. 856, which authorizes the Secretary to revise a repayment contract with the Tom Green County Water Control and Improvement District at Reclamation's San Angelo Project in Texas. The San Angelo project was authorized by Congress in 1957 to provide flood control, municipal and industrial water for the city of San Angelo. It also provides recreation, fish and wildlife, and supplemental irrigation supplies to the district.

The project has been beset by chronic drought conditions since it was constructed in 1963. These arid conditions have resulted in Reclamation granting a total of seven deferments of the annual installments due under the district's 40-year repayment contract. Due to the continued drought, the district has requested a partial deferment for 2003. Since 1997, four deferments for the district's annual payment to the United States have been granted because of the unavailability of irrigation water. The district has not taken any water from the reservoir since 1998.

H.R. 856 provides some immediate financial relief to the district by extending its contract with Reclamation by 10 years and thereby reducing its annual payments to the United States. Extension of

the repayment period will not likely be a permanent solution to the water scarcity facing this project. However, taking this action will give Reclamation some time to assess the project's long-term challenges and will aid the district by providing repayment relief. Therefore the Department supports H.R. 856.

Madam Chairman, that concludes my remarks and I would be happy to respond to any questions.

[The prepared statements of Mr. Gabaldon regarding S. 213 and H.R. 856 follow:]

PREPARED STATEMENT OF MICHAEL GABALDON, DIRECTOR, POLICY MANAGEMENT AND TECHNICAL SERVICES, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR, ON S. 213

My name is Michael Gabaldon, Director, Policy, Management, and Technical Services of the Bureau of Reclamation (Reclamation). I am pleased to be here today to present the views of the Department regarding S. 213, which would clear title to real property in New Mexico associated with the Middle Rio Grande Project and for other purposes.

The Department has several concerns with S. 213 as drafted, primarily that the dispute over ownership of the San Gabriel and Tingley Beach parcel currently implicates a lawsuit pending before the United States District Court for the District of New Mexico. In addition, the Department has concerns about how the transfer of property that would be effected by this legislation may affect other property rights in the litigation related to this matter.

The Department is not averse to transferring ownership to another entity, but all parties must agree on the venue and all applicable federal laws must be met in the process. The Department believes the prudent course of action is to allow the legal system to render its decision before instituting a legislative remedy. Therefore, the Department cannot support S. 213 at this time.

With respect to the City of Albuquerque's desires to make improvements on this property, Reclamation has provided a license to the City which allows the use of those lands as proposed in the City's improvement plans. In addition to the license, Reclamation has met directly with members of the City Planning Department to facilitate the review of the City's proposed improvements for Tingley Beach and worked with staff to assist them with State Historical Preservation Office review.

The Middle Rio Grande Conservancy District (District) was created by the Conservancy Act of 1923 to improve the economy of the Middle Valley by lowering the water table and providing flood protection and water for irrigation. In the 1940's, the District requested that Reclamation take over the operation of the District and retire its outstanding bonds. In September 1951, the District and Reclamation entered into a 50-year repayment contract in the amount of $15,708,567. A key component of the contract is Article 29, which states:

"Title to all works constructed by the United States under this contract and to all such works as are conveyed to the United States by the provision hereof, shall as provided in Article 26, be and continue to be vested in the name of the United States until otherwise provided for by Congress, notwithstanding the transfer hereafter of any such works to the District for operation and maintenance."

Therefore, the Department is also concerned with some of the findings in Section 2. Contrary to the implication of Section 2 (a) (3) of the bill, the U.S. did not claim title to Tingley Beach and San Gabriel Park for the first time in 2000. Rather, until recently, the U.S. and MRGCD had agreed for decades that title to all properties necessary for the Middle Rio Grande Project had been conveyed to the United States. For example, both the United States and MRGCD filed several briefs with the U.S. Supreme Court in the 1950's stating unequivocally that title had been transferred to the U.S., and in the 1970's MRGCD got a nuisance case involving all MRP ditches and canals in the Albuquerque Area dismissed on the basis that these properties had been conveyed to the United States.

Furthermore, in 1998 testimony before a committee of the New Mexico Legislature, the District acknowledged the need and desire to seek reconveyance after its debt was repaid.

Section 5 of the bill states that "nothing in this act shall be construed to affect or otherwise interfere with any position set forth by any party in the lawsuit . . ." It is unclear how the passage of this legislation could not affect the lawsuit given that the ownership of Middle Rio Grande Project properties is a central question in the quiet title claim of the litigation.

Despite this disagreement, the District has been a good partner on this project and has retired its debt to the United States. While we are always open to working with all interested parties to find acceptable solutions, we believe that it is best to wait on the court's decision on the quiet title claims.

Mr. Chairman, that concludes my remarks and I would be happy to respond to any questions the Committee may have.

PREPARED STATEMENT OF MICHAEL GABALDON, DIRECTOR, POLICY MANAGEMENT AND TECHNICAL SERVICES, BUREAU OF RECLAMATION, DEPARTMENT OF THE INTERIOR, ON H.R. 856

My name is Michael Gabaldon and I am the Director, Policy, Management, and Technical Services of the Bureau of Reclamation. I am pleased to present the Department's views on H.R. 856 which authorizes the Secretary to revise a repayment contract with the Tom Green County Water Control and Improvement District No. 1 (District) at Reclamation's San Angelo Project, Texas.

The San Angelo Project (Project) was authorized by the Congress in 1957 to provide flood control, municipal and industrial water for the City of San Angelo, recreation, fish and wildlife, and supplemental irrigation supplies to the District. The Project has been beset by chronic drought conditions since it was constructed in 1963. These arid conditions have resulted in Reclamation granting a total of seven deferments of the annual installments due on the District's forty-year repayment contract. Due to the continued drought the District has requested a partial deferment for the 2003 annual installment. Since 1997, four deferments for the District's annual payment to the United States have been granted because of the unavailability of irrigation water. The District has not taken any water from the reservoir since 1998. H.R. 856 provides some immediate financial relief to the District by extending its contract with Reclamation by ten years and thereby reducing its annual payments to the United States by approximately $70,000 per year. Extension of the repayment period will not likely be a permanent solution to the water scarcity facing this project. However, taking this action will give Reclamation some time to assess the project's long-term challenges and will aid the District by providing needed repayment relief.

Therefore, the Department supports H.R. 856.

Mr. Chairman, thank you again for the opportunity to present the Department's views on H.R. 856.

Senator MURKOWSKI. Thank you very much. We appreciate your testimony.

Mr. Hirsch, welcome.

STATEMENT OF ROBERT M. HIRSCH, Ph.D., ASSOCIATE DIRECTOR FOR WATER, U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

Dr. HIRSCH. Madam Chairman, I am Dr. Robert Hirsch, Associate Director for Water, U.S. Geological Survey. I thank you for the opportunity to provide the views of the Department of the Interior on H.R. 961, the Upper Mississippi River Basin Protection Act.

The Department agrees with the goals of H.R. 961. We especially appreciate the bipartisan efforts of the sponsors of the bill for their emphasis on the need for sound science to resolve the important issues of nutrients and sediment losses in the Upper Mississippi River Basin. However, we do have concerns about the financial resources that would be required for the USGS to carry out the provisions of this bill.

The bill directs the Secretary of the Interior to provide a scientific basis for the management of the sediment and nutrient losses in the Upper Mississippi River Basin. This would be accomplished through several activities that would be conducted or coordinated by the USGS. These are: establishing a sediment and nutrient monitoring network that builds on existing monitoring activi-

ties; conducting research and modeling to predict sediment and nutrient losses on the basis of landscape, land use, and land management within individual watersheds; providing the States and other organizations with technical assistance regarding use of consistent and reliable methods for data collection; and finally, dissemination of new information to managers, scientists, and the public.

The role identified in the bill for the USGS is consistent with our leadership role in monitoring, assessment, and research related to the water and biological resources of the Nation. The USGS is the Nation's largest water, earth, and biological science and civilian mapping agency. The USGS has been active in a number of programs and investigations that involve the Upper Mississippi River Basin specifically. The USGS is a participant in the Mississippi River-Gulf of Mexico Watershed Nutrient Task Force. This task force, which has representation from Federal agencies and State and tribal governments in the basin, is charged with fulfilling the requirements of the Harmful Algal Bloom and Hypoxia Research and Control Act of 1998 by preparing a plan for controlling hypoxia in the northern Gulf of Mexico, and it shares the common goal of improving water quality conditions in the Mississippi River Basin.

The USGS has also had a lead role in the preparation of a science report that used available water quality information to define a recent basin condition for nutrient sources and loads in the Mississippi River Basin, a baseline from which future water quality trends and improvements will be measured. This report identifies those parts of the Upper Mississippi River Basin that have the highest nutrient yields.

The USGS has offices in each of five Upper Mississippi River Basin States. These offices have a long history of conducting water quantity and quality monitoring and assessment activities within the basin. Several USGS programs currently provide information on nutrients and sediments within the basin. These include two programs that are based on partnerships between the USGS and the States: the Cooperative Water Program and the Water Resources Research Institutes.

For the past 20 years, the USGS Upper Midwest Environmental Science Center in LaCrosse, Wisconsin, Congressman Kind's home town—he is actually a very close neighbor of that center—that center has provided research support in the Upper Mississippi River Basin to Department of the Interior bureaus and the U.S. Army Corps of Engineers to address complex issues of navigation contaminants and other natural resource concerns.

For 15 years, the center has provided the scientific and management leadership for the long-term resource monitoring program of the U.S. Army Corps of Engineers environmental management program for the Upper Mississippi River Basin main stem rivers. This monitoring program of water quality, fisheries, vegetation, land use, and other critical indicators of river health is the largest main stem river assessment program in the Nation.

The USGS is also active in hydrologic and water quality studies in the lower Mississippi River Basin. The continuity of research between the upper and lower basins is important. To this end, the USGS has begun a partnership with the Long-Term Estuary Assessment Group Center at Tulane University.

We are pleased to see that the provisions of H.R. 961 are consistent with the Gulf of Mexico Watershed Nutrient Task Force recommendations. We are particularly appreciative of the efforts of the bill's sponsors in the House for making some adjustments to the bill language to avoid conflicts between the program authorized in this legislation and longstanding nationwide programs of the USGS.

In summary, the goals of the bill are commendable and the bill contains provisions that would build on existing USGS programs and expertise. However, funding for the activities in H.R. 961 is not included in the fiscal year 2004 President's budget proposal.

Thank you, Madam Chairman, for the opportunity to present this testimony and I will be pleased to answer questions you and other members of the subcommittee might have.

On a personal note, I would like to mention that just a month ago I participated in a water quality study of the mighty Yukon River in the State of Alaska, and I now have a new appreciation for the beauty and the resources of the central part of your wonderful State. Thank you.

[The prepared statement of Dr. Hirsch follows:]

PREPARED STATEMENT OF ROBERT HIRSCH, PH.D., ASSOCIATE DIRECTOR FOR WATER, U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

Mr. Chairman and Members of the Subcommittee, I am Robert Hirsch, Associate Director for Water, U.S. Geological Survey (USGS). I thank you for the opportunity to provide the views of the Department of the Interior (Department) on H.R. 961, the "Upper Mississippi River Basin Protection Act."

The Department agrees with the goals of H.R. 961; we especially appreciate the bi-partisan efforts of the sponsors of the bill to address this important issue and emphasis within the bill on the need for reliance on sound science. We have concerns about the financial resources that would be required for the USGS to carry out this bill in the context of the availability of resources overall for Administration programs.

The bill directs the Secretary of the Interior, acting through the USGS, to provide a scientific basis for the management of sediment and nutrient loss in the Upper Mississippi River Basin. This would be accomplished through establishing a sediment and nutrient monitoring network that builds on existing monitoring activities; conducting research and modeling that relates sediment and nutrient losses to landscape, land use and land management characteristics; providing technical assistance regarding use of consistent and reliable methods for data collection; and instituting a program to disseminate new information to managers, scientists and the public.

The role identified for the Department in this bill is consistent with USGS's leadership role in monitoring, interpretation, research, and assessment of the health and status of the water and biological resources of the Nation. As the Nation's largest water, earth, and biological science, and civilian mapping agency, USGS conducts the largest single non-regulatory ambient water-quality monitoring activity in the Nation. The USGS has been active in a number of programs and investigations that involve the Upper Mississippi River Basin (UMRB) specifically.

The USGS is a participant in the Mississippi River, Gulf of Mexico Watershed Nutrient Task Force. This Task Force, which has representation from federal agencies, and state and Tribal governments in the basin, is charged with fulfilling requirements of The Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, by preparing a plan for controlling hypoxia in the Northern Gulf of Mexico, and shares a common goal of improving water-quality conditions in the Mississippi River Basin.

The USGS also had a lead role in the preparation of a science report that used available water-quality information to define a recent baseline condition for nutrient sources and loads in the Mississippi River Basin—a baseline from which future water-quality trends and improvements will be measured. This report identifies those parts of the Upper Mississippi River Basin that have the highest nutrient yields.

The USGS has offices in each of the five Upper Mississippi River Basin states. These offices have a long history of conducting water-quantity and water-quality monitoring and assessment activities within the basin. Existing USGS programs include the Hydrologic Networks and Analysis Program, the National Water-Quality Assessment Program, the National Stream Quality Accounting Network, the National Streamflow Information Program, the Toxic Substances Hydrology Program, the Water Resources Research Act Program, and the Cooperative Water Program, as well as reimbursable programs, such as the Long-Term Resource Monitoring Program funded by the U.S. Army Corps of Engineers. These programs currently provide information on nutrients and sediment within the basin.

For the past 20 years, the USGS Upper Midwest Environmental Sciences Center (UMESC) in La Crosse, Wisconsin has provided research support in the Upper Mississippi River Basin to DOI agencies and the U.S. Army Corps of Engineers to address complex issues of navigation, contaminants, and other natural resource concerns. More recently, this Center has developed an active partnership with the Department of Agriculture, Natural Resources Conservation Service, on sediment and nutrient concerns of the agencies. For 15 years, the UMESC has provided the scientific and management leadership for the Long-term Resource Monitoring Program of the U.S. Army Corps of Engineer's Environmental Management Program for the Upper Mississippi River Basin main stem rivers. This monitoring program of water quality, fisheries, vegetation, land use, and other critical indicators of river health is the largest main stem river assessment program in the Nation. The USGS conducts monitoring activities in cooperation with many states and local governments in the Upper Mississippi River Basin. The USGS is also active in hydrologic and water-quality studies in the Lower Mississippi River Basin. The continuity of research is important from the standpoint of developing a complete assessment of the entire Mississippi River basin. To this end, the USGS has begun a partnership with the Long-term Estuary Assessment Group, centered at Tulane University.

H.R. 961 acknowledges the need to use all existing monitoring and science programs of the USGS and those of other entities while identifying information needs in the Upper Mississippi River Basin. Existing monitoring and assessment programs and development of models are tools for defining how water-quality conditions are affected by human activities and natural climatic variations and how management actions may best improve water-quality conditions at a wide range of scales from small watersheds to the Mississippi River Basin.

The bill would also authorize integration of activities conducted in cooperation with other federal partners and would emphasize and expand the existing USGS coordination and assistance to state monitoring programs. For example, the U.S. Fish and Wildlife Service's (Service) Partners for Fish and Wildlife Program restores wetland habitat in watersheds across the country, including the Upper Mississippi River Basin. The Service can apply its expertise to the reduction of sediment and nutrient loss in the basin through participation in demonstration projects, technical assistance, and working groups. We recognize the need to ensure that future monitoring activities complement and do not duplicate state monitoring activities.

The provisions of H.R. 961 are consistent with Gulf of Mexico Watershed Nutrient Task Force recommendations with regard to science and management activities. The proposed legislation describes a program consistent with current USGS activities to support protection of the UMRB.

In summary, the goals of the bill are commendable, and the bill contains provisions that are within the scope and expertise of the USGS, and that are already being addressed by other on-going programs. However, funding for the activities in H.R. 961 is not included in the fiscal year 2004 President's Budget proposal and would remain subject to available resources.

Thank you, Mr. Chairman, for the opportunity to present this testimony. I will be pleased to answer questions you and other members of the Subcommittee might have.

Senator MURKOWSKI. Good. Now, you led right into that. I have to ask, how did we do?

Dr. HIRSCH. The Yukon River is really quite a pristine river. Its condition is very natural and our reason for doing the study is really to try to provide a baseline to understand this river, particularly in light of global warming, which is having significant effects in terms of the melting of permafrost, and we expect to see changes in the future and we wanted to have a good baseline. It was actually our studies of the Mississippi that got us thinking about that.

We had some data from about 100 years ago on the Mississippi that are very, very useful in understanding the issues that we have there today.

Senator MURKOWSKI. Great. Well, nice that you could make it up there.

Dr. HIRSCH. Yes.

Senator MURKOWSKI. Now that you have the baseline, we will just have to invite you back later.

Let me ask you one quick question and then I will move on to the other gentlemen. You have obviously spoken to a broad array of programs that are under way in the Upper Mississippi, and from your testimony, it appears that many of the objectives in the legislation in front of us already exist in different forms.

Do you feel that the USGS already has sufficient authority to develop an integrated program with appropriate administrative direction, or is additional authority and direction needed at this time?

Dr. HIRSCH. I think that the things provided for in this bill do not require additional authority. I think the existing programs that we have would provide sufficient authority. I think this bill would provide a focus to that, which I think could be useful in carrying it out.

I would add that, while we have a good track record of work done in the Upper Mississippi Basin, the level of effort in terms of monitoring the water quality in that area has decreased considerably since our efforts of about a decade ago, simply due to budgetary limitations.

Senator MURKOWSKI. Thank you.

Mr. Brown, in your testimony it is apparent that the administration is supportive of salt cedar management and in general management of invasive species, particularly in the West. We have got two bills before us today: S. 1236, Senator Campbell's bill, which directs the funding for the salt cedar control to a single agency designated to each State via grant; then we also have Senator Domenici's bill which establishes the demonstration programs.

Can you comment on which approach would be most effective and the issues or concerns with each?

Mr. BROWN. I would be glad to provide a preliminary response today and look forward to providing a response in greater detail at a later time. On the front end, what I would suggest is that the involvement of multiple groups to set priorities for the projects is one appealing aspect. That is, utilizing not only a State lead agency, but also the technical and economic and social skills brought to bear by the National Invasive Species Council and its Invasive Species Advisory Committee.

That two-pronged approach of having all Federal agencies around the table discussing with States and local landowners issues, as well as having a Federal advisory committee which brings expertise from the non-federal arena, is a marvelous model for setting guidelines and helping to set those priorities. So on the one hand I believe there's a tremendous amount of support for that team effort, if I may call it that.

There is advantage too in jumping into demonstration projects. I think that the Department has called attention in its testimony to the need to combine the scientific work with the control and

management efforts, so that constant monitoring and reassessment can be conducted right away, and that in conjunction with discussions with the various entities—the landowners, the Federal agencies with land management responsibilities—that scientific information needs to be shared broadly so that the stakeholders as a group can better define whether they are succeeding or not in those demonstration programs.

So I think in our written response what will come back is a collation of the two that would say we see merit in both approaches and we see a way that we would be glad and would be glad to provide help to the committee in trying to fashion a melding of the two.

Senator MURKOWSKI. If I heard Senator Domenici correct in his opening statement, it suggested that it would be his desire to perhaps combine the two.

Let me ask you about just invasive species in general. I mean, we have been focusing on the tamarisk, the salt cedar, and the Russian olive, and these plants seem to represent, or at least based on what we have heard, the largest invasive species problem in the inter-mountain West. But I would ask you if there are any other invasive species of equal concern to the States or on our Federal lands that you are currently addressing?

Mr. BROWN. Again, I would ask for permission to provide written remarks for a more comprehensive response. Clearly the array of invasive species that we are trying to address under the auspices of the executive order signed under the last administration and in ongoing programs of the Department address the full array of species. Those can be aquatic nuisance species like kalerpa, the killer algae that was discovered off San Diego Bay and may now be fully eradicated. One more quarter of analysis will allow us to determine whether in fact it has been eradicated successfully.

The leafy spurge, which is the scourge of the northern plains, of course has devastated ranching operations in the past there, but has succumbed in great part because of biological control efforts that were orchestrated in a team effort between the Departments of Agriculture and Interior and private ranchers who worked together to test the organisms that actually eat the leafy spurge enough that native organisms can get in and kill the plants back so that it takes a background level on the landscape rather than the dominant level. That is a very famous one.

Obviously, snakehead is an example of charismatic negafauna, something that is easy to hate. That is an example I believe of the difficulty in distinguishing between food-related pathways and other accidental or unintentional pathways that allow organisms to come into the country, versus the intentional pathways that were utilized when ornamentals were brought in such as tamarisk and salt cedar.

So I think in our written response I could save you time now and we will provide a listing of the array of different kinds of organisms that run the gamut from West Nile Virus right through some of the big ones that are now well known, like snakeheads.

Senator MURKOWSKI. Thank you. I will look forward to that. I do not know that I have heard any fauna being described as "charismatic megafauna."

Mr. BROWN. Nega. I was trying to make a bad pun, I am sorry. Nega with an "n". Elephants being charismatic megafauna, and I was trying, I admit desperately, to capture something there for snakeheads. Better known as the Frankenfish; maybe we should stick with that.

Senator MURKOWSKI. Frankenfish, there we go.

Thank you. We will look forward to that then.

Mr. Gabaldon, regarding the Tom Green County Water Control and Improvement District, you have suggested that a broader assessment of water needs and supply options for this area might be appropriate and I am wondering if such an assessment has been initiated and, if so, if you can comment on the objectives and the timing of such an assessment.

Mr. GABALDON. Madam Chairman, the assessment has not begun. We are working with the district and the district has provided us some options to us, some of the things that they see could work out here. So we are working with the irrigation district on that and we will continue working with them to see what we can come up with there in terms of trying to extend that water supply out there.

Senator MURKOWSKI. Thank you.

Then moving over to S. 213, if I understand you correctly the administration's position is that you do not oppose the transfer of public lands to private—excuse me—of public lands to private landholders in general, but the concern here is waiting for the completion of the lawsuit concerning the ownership.

Would it be fair to say that if the court rules in favor of the Government, establishing Federal ownership, that you would be willing to proceed with the transfer to the city of Albuquerque?

Mr. GABALDON. Madam Chairman, we would proceed in that fashion, with the caveat that the Department of Justice would have to ensure that there is not some additional ties there that would bind the Government in some way. So as far as the Department of the Interior, we would be—we are not opposed to conveying this property back over, specifically in this one to the city of Albuquerque.

Senator MURKOWSKI. Thank you.

Let me make sure—then again, also on the Albuquerque land transfer, speaking to lands that are deemed to be surplus lands or unnecessary to the needs of a particular project, you obviously can move to a quitclaim. Do you consider that the parcels that you referred to, Tingley Beach and San Gabriel Park, do you consider these to be unnecessary to the needs of the bureau?

Mr. GABALDON. Madam Chairman, we do not see a problem in these two parcels if they were to be conveyed, deeded over to the city of Albuquerque. We do not see that interfering with our operations of the Middle Rio Grande project.

Senator MURKOWSKI. Thank you.

Thank you, gentlemen. I appreciate your testimony and your response to the questions this afternoon. We will now go to the next panel, which consists of: Mr. Tim Carlson, director of the Tamarisk Coalition; Mr. John Marshall, assistant director from the Colorado Department of Natural Resources; Ms. Debbie Hughes, executive director, New Mexico Association of Conservation Districts; and

Ms. Holly Stoerker, executive director of the Upper Mississippi River Basin Association.

Ladies and gentlemen, good afternoon and welcome to the subcommittee. I think what we will do is—let me see what kind of an order we have here. Why don't we start with you, Mr. Carlson. We stuck you in the middle and you get to go first.

STATEMENT OF TIM CARLSON, EXECUTIVE DIRECTOR, TAMARISK COALITION

Mr. CARLSON. Madam Chairman and members of the committee: Thank you for this opportunity to present testimony before your committee on the important issue of tamarisk and Russian olive control in the West. The mission of the Tamarisk Coalition is to provide education on the problem of the non-native invasive plant tamarisk, which has been referred to also as salt cedar—it is the same plant—and to help develop long-term management and funding structures to control its infestation. Our goals are the restoration of the native habitat to the West's rivers and streams and the preservation of its water resources for beneficial uses.

I would first like to take the opportunity to thank both Senator Domenici and Senator Campbell for their sponsorship of these two bills. The proposed legislation includes significant on-the-ground demonstration projects, and I will concentrate my testimony on the importance of these large-scale demonstrations beyond the obvious benefits of site-specific tamarisk control and restoration.

The demonstrations serve to help answer critical questions on what will be the true changes that will result after tamarisk control and restoration take place. That is, changes to water availability in both the surface and groundwater supplies, changes to water quality, changes to wildlife habitat, and changes to biodiversity of plants and animals.

It is acknowledged that considerable research has already been done in these areas. However, much of this work was done on a small scale and some results are conflicting. The significant demonstrations associated with these bills can be used to better understand the impacts of control and restoration to help improve the economic viability of future work.

The demonstrations under these bills will not solve the tamarisk problem, but will be vitally important to developing long-term solutions. They can be used to support international cooperation on tamarisk control between the United States and Mexico by including in the legislation at least one border demonstration, and the demonstrations can also serve to foster quality work experience for youth through existing programs.

Both S. 1236 and S. 1516 are well thought out and have many similarities. The differences between the current bills can enhance the final bill that goes through the markup process. We have identified a number of issues in our written testimony. I would like to just concentrate on a couple of these.

First, there has been significant biocontrol research and release programs that have shown some significant success in the past couple years. If this approach can be shown to be successful on the large scale demonstrations that are authorized under these bills, the economics of control could be reduced by as much as 90 percent

over any existing herbicide or mechanical control tamarisk. Currently no similar type of biocontrol research is being conducted on Russian olive and it would be appropriate to include specific language in the final bill to energize this effort.

Secondly, S. 1516 includes the costs for control of Russian olive as well. Thus the higher authorized funding, $50 million per year, is appropriate and reasonable to address the combined problems of both tamarisk and Russian olive.

Thirdly, S. 1516 identifies the importance of developing long-term management and funding strategies that could be implemented by State, Federal, and local land managers. The development of sustainable funding over a long time frame is crucial to solving the tamarisk problem.

Finally, the question has to be asked, what would the public gain from these efforts? From a cost standpoint, tamarisk control and restoration is low-hanging fruit. Preliminary cost estimates would indicate that long-term gains in water availability are 5 to 20 times less costly than other alternatives. This change in water availability will not immediately be evident in the river system. What will likely first be seen is changes to groundwater levels that have been drawn down from decades of tamarisk infestation.

Beyond improving the abundance of water, the other important side benefits of tamarisk control and riparian restoration are that water quality will be enhanced, wildlife habitat will be improved, there will be greater biodiversity among both plants and animals, and there will be improved conditions for human enjoyment of the river systems. These benefits are important to the people of the West, but they are also important to the people of the Nation.

Although most people think of the tamarisk problem as one that is principally located in the Southwest, it is important to know that it is quickly spreading throughout the plains States as well as in the Northern Western States. For example, tamarisk now infests the Arkansas River for over 150 miles into Kansas. More dramatically, tamarisk occupies over 200 miles of Yellowstone River in Montana, the longest free-flowing river in the lower 48 States.

The Tamarisk Coalition encourages Congress to pass and fund this legislation to help preserve the limited water resources of the West and to help restore riparian habitat. Thank you for this opportunity to speak before this committee.

[The prepared statement of Mr. Carlson follows:]

PREPARED STATEMENT OF TIM CARLSON, EXECUTIVE DIRECTOR, TAMARISK COALITION

Dear Madam Chairman and Members of the Committee: Thank you for this opportunity to present testimony before your committee on the important issue of tamarisk (also known as Salt cedar) and Russian olive control in the West.

The Tamarisk Coalition is a non-profit organization that represents a wide variety of interests that includes state and federal land managers, Tribal units, local governments, environmental organizations, water conservation districts, farmers, and ranchers. The mission of the Tamarisk Coalition is to provide education on the problem of the non-native invasive plant tamarisk and to help develop long-term management and funding structures to control its infestation. Our goals are the restoration of native habitat to the West's rivers and streams, and the preservation of its water resources for beneficial uses.

The proposed legislation, S. 1236—Tamarisk Control and Riparian Restoration Act and S. 1516—Salt Cedar Control Demonstration Act are extremely important and needed pieces of legislation. While the tamarisk issue has been identified as a

significant problem for almost 50 years, it has taken the drought of the past several years to gain widespread acceptance that solving this problem should be an important component of the West's water management strategy. S. 1236 and S. 1516 provide significant on-the-ground demonstration projects that will help to answer critical questions on potential changes to water availability, water quality, habitat, and biodiversity. S. 1516 also identifies the critical issue of developing long-term management and funding strategies that could be implemented by Federal, State, local, Tribal, and private land managers.

The Tamarisk Coalition believes that these bills provide appropriate direction to help gain protection of the West's limited water resources and riparian habitats from the infestation of tamarisk and Russian olive. This written testimony is divided into four sections that provide a background on the problem, suggested changes to the legislation with a comparison of the two bills, important issues to consider, and importance of the on-the-ground demonstrations.

BACKGROUND

Tamarisk is the primary non-native phreatophyte (water loving plant) of concern in the West and thus has the dubious distinction as the "poster child" of non native plants impacting the riparian zone of rivers and streams. Other plants, notably Russian olive (*Elaeagnus angustifolia*), co habit with tamarisk and also deserve attention. Therefore, within the context of this testimony, whenever the term "tamarisk" is used, one must also consider Russian olive as the other principal invasive plant that may be important to control within riparian areas.

Impacts—Tamarisk (*Tamarix spp.*) is a deciduous shrub/small tree that was introduced to the western U.S. in the early nineteenth century from Central Asia and the Mediterranean for use as an ornamental, in windbreaks, and for erosion control. Tamarisk is well suited to the hot, arid climates and alkaline soils common in the western U.S., and has escaped cultivation to displace native vegetation. It gradually became naturalized along minor streams in the southwest and by the mid-twentieth century, tamarisk stands dominated low-elevation (under 6,500 feet) river and stream banks from Mexico to Canada. Tamarisk is now believed to cover anywhere between 1.0 and 1.5 million acres of land in the western U.S. and may be as high as 2 million acres (Zimmerman 1997). The severe impacts on riparian systems that this infestation causes throughout the West include (Carpenter 1998, DeLoach 1997):

- Tamarisk populations develop into dense thickets, with as many as 3,000 plants per acre that can rapidly displace all native vegetation (e.g., cottonwoods and willows).
- As a phreatophyte, tamarisk invades riparian areas, leading to extensive degradation of habitat and loss of biodiversity in the stream corridor.
- Excess salts drawn from the groundwater by tamarisk are excreted through leaf glands and are deposited on the ground with the leaf litter. This increases soil salinity to levels that kill saline intolerant willows and other plants and prevents the germination of many native plants.
- Tamarisk seeds and leaves lack nutrients and are of little value to wildlife and livestock.
- Leaf litter from tamarisk tends to increase the frequency and intensity of wildfires which tend to kill many native plants but not tamarisk. An example of this process was the 2003 fires in Albuquerque along the Rio Grande River.
- Dense stands on stream banks may gradually cause narrowing of the channel and an increase in flooding. Channel narrowing along with tamarisk induced stabilization of stream banks, bars, and islands lead to changes in stream morphology, which can impact habitat for endangered fish.
- Dense stands affect livestock by reducing forage and prevent access to surface water.
- Aesthetic values of the stream corridor are degraded, and access to streams for recreation (e.g., boating, fishing, hunting, bird watching) is lost.

While each of these points is important to one or more constituencies, the single most critical problem is that tamarisk uses more water than native vegetation that it displaces. This non-beneficial user of the West's limited water resources dries up springs, wetlands, and riparian areas by lowering water tables (Carpenter 1998, DeLoach 1997, Weeks 1987). As tamarisk moves into adjacent upland habitats through the aid of its deep root system, it consumes even more water as it replaces the native grass/sagebrush/rabbit brush communities (DeLoach 2002). Zaveta (2000) demonstrates that a program of tamarisk control and revegetation would have clear economic, social, and ecological benefits. The National Invasives Species Council has identified tamarisk as one of its primary targets, most western states have listed

it on their noxious weed list, and Colorado Governor Bill Owens has issued an Executive Order to control tamarisk on public lands within ten years.

Water Usage by Different Vegetative Types—Limited evidence indicates that water usage per leaf area of tamarisk and the native cottonwood/willow riparian communities may not be that different. However, because tamarisk grows into extreme thickets, the leaf area per acre may actually be much greater; thus, water consumption would also be greater on an acre basis (Kolb 2001). Probably the most insidious aspect of tamarisk and its consumption of water is that its much deeper root system (up to 100 feet compared to healthy cottonwoods and willows stands at 6 feet (Baum 1978, USDI-BOR 1995)) allows tamarisk to grow further back from the river and thus can occupy a larger area and use more water across the floodplain than would be possible by the native phreatophytes. This is especially significant, because the adjacent uplands and floodplain typically occupy a cross-sectional area several times that of the riparian zone. In these areas, less dense areas of mesic plants can be replaced by tamarisk resulting in overall water consumption several times that associated with these other plants (DeLoach 2002).

From thirteen different studies conducted between 1972 and 2000 on tamarisk evapotranspiration rates, the average water use reported is approximately 5.3 feet per year (Hart 2003). More recent work performed on the Pecos River in Texas over the last three years indicates water use by tamarisk of 7.7 feet per year (Hart 2003). Recent research by the U.S. Department of Interior on the middle Rio Grande estimates evapotranspiration rates on the order of 4.3 feet per year (Interior 2003). These studies were performed using different methods of measurement, at different locations, and for different densities of infestation. Native cottonwood/willow communities have been estimated to use approximately one foot less per year than tamarisk (Weeks, 1987) while the native shallow-rooted upland plant communities of grasses, sage, etc. principally use only the moisture received by precipitation. Unpublished research on the Bosque del Apache National Wildlife Refuge on the middle Rio Grande River in New Mexico indicates that Russian olive has very similar evapotranspiration rates as tamarisk (Bawazir 2003).

Estimates of Non-Beneficial Water Use—The term "non-beneficial water use" is defined as the difference in water consumption (evapotranspiration) between tamarisk and the native plants it has replaced. Estimates on water consumption by tamarisk vary a great deal depending on location, maturity, density of infestation, and depth to groundwater. This will also be true for the cottonwood/willow community. Using the above information, one can reasonably estimate that this non-beneficial use of water is approximately 1 foot per year for tamarisk in the riparian areas that could support a cottonwood/willow community and approximately 4 feet per year for the upland areas that could support a native grasses/sage/rabbit brush type of plant community. For the West, it is estimated that one-third to two-thirds of the land currently infested by tamarisk was formerly occupied by cottonwood/willow communities and that the remaining percentage of land would have been occupied by grasses/sage/rabbit brush type of plant communities. If one takes the estimated infested acreage of 1.0 to 1.5 million acres in the West, the estimated non-beneficial water consumption is approximately 2.0 to 4.5 million acre-feet per year. These estimated water losses represent enough water to supply upwards of 20 million people (Denver Water Board 2002) or the irrigation of over 1,000,000 acres of land. At a modest infestation rate of only 1% per year, these losses will increase by two-thirds in the next 50 years (see attached Figure). These values obviously represent a great deal of water that is being consumed beyond what the valuable native plants would have used. It would be even higher if the areas occupied by other non-native phreatophytes, such as Russian olive were included.

Costs—Costs for removal vary depending on the expanse of the infestation, existence of other valuable plant species, and terrain. For aerial helicopter spraying with herbicide the cost is around $200 to $250 per acre (Hart 2003, Lee 2002). While aerial herbicide spray is extremely effective in killing tamarisk, it also kills most other vegetation types and must be used judiciously. For mechanical mulching and herbicide application the cost ranges from $300 to $800 per acre (McDaniel 2000, Taylor 1998, CWCB 2003). For hand clearing and herbicide application the cost can range from $1,500 to $5,000 per acre (Tamarisk Coalition 2002). Terrain, access, presence of other native vegetation, etc. all dictates which approach to use. No one approach is right for all situations. The U.S. Department of Agriculture recommends the strategy of *Integrated Pest Management* that matches the right methods for each situation.

Additionally, a bio-control approach that uses a Chinese leaf beetle (*Diorhabda elongata*) has been undergoing research for the past 10 years by the U.S. Departments of Interior and Agriculture, and is showing great promise for reducing costs (De Loach 2002). Recent work from the Lovelock, Nevada bio-control release site

showed near 100 percent defoliation on nearly 400 acres of tamarisk (Carruthers 2003). Based on preliminary estimates, this control technique could reduce the costs to a small fraction (10 to 20 percent) of any herbicide and/or mechanical approach. The current status of this bio-control program is that the USDA Animal and Plant Health Inspection Service's (APHIS) intention is to publish for review the recommendation to implement the release of the Chinese leaf beetle in 2004 north of the 38th parallel—essentially 70 miles north of the Oklahoma, New Mexico, and Arizona state lines (Richard 2003).

The important role that APHIS plays in helping states implement these bio-control efforts in the future cannot be overlooked. As part of any demonstration that involves the use of the Chinese leaf beetle, it should include the combined involvement of USDA and Interior scientists working with APHIS to help guarantee the utmost success.

Tamarisk control is only part of the cost. Restoration is the other component which is necessary to bring back the right native plants and restore habitat. If the objective is to only kill tamarisk, other invasive noxious weeds will likely take their place if restoration is not part of the effort. Restoration may occur naturally where native plants are still viable or may require specialized efforts to restore the riparian lands. In general, costs may range from $50 to $1,500 per acre.

The Tamarisk Coalition has estimated that the overall cost for control and restoration could have an average range of $250 to $350 per acre-foot of water resources recovered (CWCB 2003). As a reference point, the cost of purchasing senior water rights in the Denver, Colorado area is valued at $4,000 to $12,000 per acre-foot (Franscell 2002). This change in water availability will not immediately be evident in the river systems but will likely first be seen as changes to groundwater levels that have been drawn down from decades of tamarisk infestation.

Beyond improving the abundance of water, the other important side benefits of Tamarisk control and riparian restoration are 1) water quality will be enhanced, 2) wildlife habitat will be improved, 3) there will be greater bio-diversity among both plants and animals, and 4) there will be improved conditions for human enjoyment of the river systems. The value of this improved viability of the West's river systems is difficult to measure in terms of dollars but is considered to be highly significant.

SUGGESTED CHANGES AND COMPARISON OF S. 1236 AND S. 1516

Suggested Changes: The Tamarisk Coalition offers for consideration the following three suggested changes to the Senate bills:

1. Add: "The Secretary shall also identify at least one international demonstration project between the U.S. and Mexico." This addition is important because tamarisk infestations do not recognize political boundaries, and eventual control will require cooperation between both governments and will aid in meeting international agreements for water delivery.

2. Change the language associated with Cost-Sharing to read: "The Federal share of the costs of any demonstration activity funded under this program shall be no more than 75 percent of the total cost. Research activities associated with demonstrations shall be 100% Federal share." This change is important because critical research issues on water availability, water quality, habitat, and bio-diversity benefit the entire West and are not solely a local issue. Additionally, this type of research will be a collaborative effort between federal scientists and numerous universities throughout the West that are not project specific.

3. Add: "For demonstration projects, the Secretary is encouraged to award procurement contracts, grants, or cooperative agreements under this section to entities that include Youth Conservation Corps, Americorps, or related partnerships with State, Native American, local or non-profit youth organizations, or small or disadvantaged businesses where appropriate." This change would reinforce the use of youth programs for performing many of the labor-intensive activities associated with control and restoration. The use of youth programs provides added value in the form of training, work experience, and work ethics.

Comparison of Bills: Both S. 1236 and S. 1516 are very similar with few exceptions. These differences can enhance the final bill that goes through the mark-up process. The following are those areas that the Tamarisk Coalition views as important to consider.

a. S. 1236 identifies the States as the grant recipients to administer the demonstrations through a lead state agency. We believe this to be an efficient approach for the on-the-ground demonstration projects. We recommend that the research and monitoring components of the demonstrations identified in S. 1516 be directed by the Secretary of Interior.

b. S. 1236 identifies that not more than 10 percent of the grant amount to the states be used for administration expenses. We would suggest similar language in S. 1516 for research efforts, such as "not more than 20 percent of the total funds authorized under this act shall be used for research and monitoring activities".

c. S. 1516 includes the costs for control of Russian olive. Thus, the higher authorized funding ($50,000,000 per year) is appropriate and reasonable to address the combined problems of tamarisk and Russian olive.

d. S. 1516 identifies the importance of developing long-term management and funding strategies that could be implemented by Federal, State, and private land managers. The development of sustainable funding over a long time frame is critical to solving the tamarisk problem.

e. Bio-control research and release programs are showing significant success. If this approach can be shown to be successful on the large-scale demonstrations proposed under S. 1236 and S. 1516, the economics of control could be reduced by as much as 90% over any herbicide and/or mechanical control technology. Currently, no similar type of bio-control research is being conducted on Russian olive and it would be appropriate to include specific language in the final bill to energize this effort.

f. Both S. 1236 and S. 1516 include the importance of restoration and maintenance. These components are essential because tamarisk control without restoration and maintenance will generally not achieve the desired objectives.

IMPORTANT ISSUES

Tamarisk Coalition partners have raised four issues that are important to consider in the overall control of tamarisk and restoration in the West. They are:

1. Water Rights—The control of tamarisk should improve both groundwater and surface water supplies in the future. This is not the creation of new water but rather the prevention of a non-beneficial use of water and, therefore, no new water rights should be implied. Respect for existing State water law and water rights are important to maintain.

2. Property Rights—While private property owners are some of the strongest supporters of this legislation, it is important to acknowledge that private property rights must be respected.

3. Existing Infrastructure—The rivers of the West are highly impacted by man to improve their capability to store and supply water (e.g., dams, irrigation systems) for beneficial use. Existing infrastructure is important for the continuation of these uses and tamarisk control and restoration should respect these conditions.

4. Endangered Species—Protection of endangered species have been viewed in the past as a potential obstacle to tamarisk control. This is not now the case. The *Final Southwestern Willow Flycatcher Recovery Plan* (U.S. Fish and Wildlife Service 2002) does provide management approaches that will allow staged removal of tamarisk and restoration to occur. The Upper Colorado River Endangered Fish Recovery Program also recognizes the impacts tamarisk has had on river structure and its subsequent impact on fish breeding opportunities. The Endangered Fish Recovery Program is working directly with the Tamarisk Coalition to develop compatible tamarisk control and restoration strategies that will enhance fish recovery.

The value of well designed demonstration projects authorized under S. 1236 and S. 1516 is that these projects will help to demonstrate that tamarisk control and restoration can be successful while maintaining respect for water rights, property rights, existing infrastructure, and endangered species.

IMPORTANCE OF THE ON-THE-GROUND DEMONSTRATIONS

The proposed legislation includes significant on-the-ground demonstration projects. The Tamarisk Coalition would like to concentrate on 4 points that emphasize the importance of these large-scale demonstrations beyond the obvious benefits of site specific tamarisk control and restoration.

First: Under S. 1516, the demonstrations serve to help answer critical questions on what will be the true changes that will result after tamarisk control and restoration takes place. That is, changes to water availability in both the surface and groundwater supplies, changes to water quality, changes to wildlife habitat, and changes to the biodiversity of plants and animals. It is acknowledged that considerable research has already been done in these areas; however, much of this work was done on a small scale and results are conflicting. The significant demonstrations as-

sociated with these bills can be used to better understand the impacts of control and restoration and to help improve the economic viability of future work. Because these monitoring activities go beyond single demonstrations and will involve many federal scientists, we encourage that monitoring be 100% federally funded.

Second: As stated above, Tamarisk Coalition partners have identified four important issues. These include respect for existing state water laws and water rights, respect for property rights, respect for existing infrastructure such as water storage and delivery systems, and respect for endangered species. We believe that large-scale demonstrations will show that tamarisk control and restoration can be successful, and at the same time be supportive of these issues. In fact, both water rights and endangered species recovery should be enhanced under well-designed demonstrations.

Third: The demonstrations will not solve the tamarisk problem. However, the demonstrations can be used as an educational and cooperational tool to help develop the strategies for long-term management and funding for tamarisk control and restoration.

Fourth: The demonstrations can be used to support international cooperation on tamarisk control between the U.S. and Mexico by including at least one border demonstration within the legislation. The demonstrations can also serve to foster quality work experience for youth through existing programs.

Finally, the question has to be asked—What will the public gain from these efforts? From a cost standpoint, tamarisk control and restoration is low hanging fruit. Preliminary cost estimates would indicate that long-term gains in water availability are 5 to 20 times less costly than new storage, water recycling, conservation, or desalination efforts. Beyond improving the abundance of water, the other important side benefits of tamarisk control and riparian restoration are: 1) water quality will be enhanced; 2) wildlife habitat will be improved; 3) there will be greater bio-diversity among both plants and animals; and 4) there will be improved conditions for human enjoyment of the river systems. These benefits are important to the people of the West and the Nation.

Although most people think of the tamarisk problem as one that is principally located in the Southwest, it is important to know that it is quickly spreading throughout the Plains states as well as northern western states. For example, tamarisk now infests the Arkansas River for over 150 miles into Kansas. More dramatically, tamarisk occupies over 200 miles of the Yellowstone River in Montana the longest free-flowing river in the lower 48 states (Richard 2003).

The Tamarisk Coalition encourages Congress to pass and fund this legislation to help preserve the limited water resources of the West and to help restore riparian habitat. Thank you for this opportunity to present testimony before your committee.

REFERENCES

Baum, B. R. 1978. The Genus Tamarix. Israel Academy of Sciences and Humanities, Jerusalem. 209 pp.

Bawazir, A.S., New Mexico State University, Personal communication, April 2003.

Carpenter, A. 1998. Element Stewardship Abstract for *Tamarix ramosissima Lebedour, Tamarix pentandra* Pallas, *Tamarix chinensis* Loureiro, and *Tamarix parviflora* De Candolle. The Nature Conservancy, Arlington, Virginia.

Carruhers, J., Personal Communications. September 2003.

CWCB 2003, Colorado Water Conservation Board, "Impact of Tamarisk Infestation on the Water Resources of Colorado", May 30, 2003, prepared by the Tamarisk Coalition.

DeLoach, J. 1997. Effects of Biological Control of Saltcedar (Tamarix ramosissima) on Endangered Species: Biological Assessment. U.S. Department of Agriculture, Temple, Texas.

DeLoach, J., R. Carruthers, J. Lovich, T. Dudley, and S. Smith, 2002. "Ecological Interactions in the Biological Control of Saltcedar (*Tamarix spp.*) in the United States: Toward a New Understanding"—Revised.

Denver Water Board, 2002. "Denver Water Comprehensive Annual Financial Report 2001".

Franscell, R., Denver Post, *Drought years plumb the depths of water rights, Conflicts inevitable in self-policing system based on prior claims*, September 10, 2002.

Hart, C.R., Texas A&M, Personal communication on the Pecos River Ecosystem Project. March 2003.

Kolb, Thomas E. 2001 "Water Use of Tamarisk and Native Riparian Trees." Proceedings of the Tamarisk Symposium, September 26-27, 2001, Grand Junction, Colorado.

Lee, B., Northstar Helicopter. Personal communication, August 2002

McDaniel, K.C., and Taylor, J.P. *Saltcedar Recovery After Herbicide-burn and Mechanical Clearing Practices*, New Mexico State University and U.S. Fish and Wildlife Service. 2000
Richard, R., USDA Animal and Plant Health Inspection Service. Personal communication, September 2003.
Tamarisk Coalition, 2002. "National Fish and Wildlife Foundation—Pulling Together Initiative Final Report on Tamarisk control in the Upper Colorado River", Project #2001-0028-006.
Taylor, J.P., and McDaniel, K.C. *Restoration of Saltcedar (Tamarix sp.)—Infested Floodplains on the Bosque del Apache National Wildlife Refuge.* Weed Technology, 1998, Volume 12:345-352
Weeks, E., H. Weaver, G. Campbell and B. Tanner, 1987. Water use by saltcedar and by replacement vegetation in the Pecos River floodplain between Acme and Artesia, New Mexico. U.S. Geological Survey, Reston, Virginia.
USDI-BOR 1995. "Vegetation Management Study: Lower Colorado River, Phase II." U.S. Department of Interior, Bureau of Reclamation, Lower Colorado River, Draft Report, Boulder City, Nevada.
U.S. Department of Interior personal communications, 2003
U.S. Fish & Wildlife Service, "Southwestern Willow Flycatcher (*Emidonax traillii extimus*) Final recovery Plan", August 2002.
Zavaleta, E., 2000. "Chapter 12—Valuing Ecosystem Services Lost to Tamarix in the United States; Invasive Species in a Changing World", Mooney, H. A. and R.J. Hobbs (eds.) Island Press, Washington, D.C.
Zimmerman, J. 1997. Ecology and Distribution of *Tamarix chinensis* Lour and *T. parviflora* D.C., *Tamariccea.* Southwest Exotic Plant Mapping Program, U.S. Geological Survey.

Senator MURKOWSKI. Thank you, Mr. Carlson.
Mr. Marshall.

STATEMENT OF JOHN MARSHALL, ASSISTANT DIRECTOR, COLORADO DEPARTMENT OF NATURAL RESOURCES

Mr. MARSHALL. Thank you, Madam Chairman. I appreciate that. My name is John Marshall. I am here on behalf of the State of Colorado and I would like to convey to the committee some of the State's perspective on this problem. This obviously has come to the fore in the wake of, in Colorado's terms, the worst drought in 300 years. We know that there are a lot of things about drought we cannot control. However, there are things that we can control. Nonnative noxious plants such as tamarisk are precisely one of those things. As Mr. Carlson and others have pointed out, there are numerous benefits to removing it in terms of protecting the resource and improving quality and quantity of flows.

We had to take a look in Colorado at how extensive the issue is. We estimate it to be over a quarter million acres of Colorado, which is significant primarily because Colorado is the headwater State for so many of the Western rivers. We know that, for instance, if it is a problem for Colorado these issues, water flows, are going to be—they are also a major concern for our friends downstream.

What we see in Mr. Campbell's bill I think is something that can be extremely helpful for States. We have partnerships in place where we have already begun some tamarisk control projects. I would point specifically to one in the San Miguel Basin where the Nature Conservancy has partnered with some of our friends in the Federal Government, the State government, counties, local governments, as well as nonprofit groups such as the Tamarisk Coalition and have been able to attack on a very small and basin-specific region and try and start moving toward ridding that basin of tamarisk.

To expand this across different land ownership patterns in terms of the BLM, other Federal lands, and the Arkansas River specifically, which is predominantly private lands, we believe that we need assurances and some helpful matching grants from the Federal Government, and I think that is where Mr. Campbell's bill would give us a hand there.

There are a lot of research items that we know we need to improve upon. We understand to a great extent what the problem is and some of the ways to control it, but there are gaps in our science as I understand it. So we like the approach that Mr. Domenici is taking in terms of doing some on-the-ground experiments while we are learning and improving our understanding of that.

But we would like to convey to your committee that we do have the partnerships in place. We have the ability to bring together water conservancy districts as well as local governments and State and nonprofit groups, who are all very interested, for various reasons, in attacking this problem. If we can receive some matching grants and some assurances from the Federal Government that we are willing to attack this in a broad and comprehensive fashion because of the way tamarisk spreads, that obviously is necessary and would be very helpful for the State.

I do not hope to repeat anything that has been said prior to me, so I will at this point yield my time back to the chair and would be happy to entertain any questions.

[The prepared statement of Mr. Marshall follows:]

PREPARED STATEMENT OF JOHN MARSHALL, ASSISTANT DIRECTOR, COLORADO DEPARTMENT OF NATURAL RESOURCES

Ladies and gentlemen of the committee, my name is John Marshall and I currently serve as an assistant director of the Colorado Department of Natural Resources (DNR). It is my distinct honor to come before you on behalf of Governor Bill Owens and DNR Director Greg Walcher and provide Colorado's perspective on the two pieces of legislation currently before the committee. I wish to provide a glimpse of both the extent of the tamarisk problem we face, as well as some of the direct and immediate steps we have taken at the state level to cope with this problem.

The tamarisk infestation in Colorado is quickly reaching epidemic proportions. Because of Colorado's natural hydrology, we rely solely on snowpack that falls within our borders, as no rivers or streams flow into our state. We are home to the headwaters of such major Western rivers as the South Platte, the Arkansas, the Rio Grande, the Yampa, and the mighty Colorado River.

Tamarisk has now infested all of our major waterways to varying degrees. We estimate that more than 250,000 acres of riparian areas are now choked with the woody noxious weed. The scientists on today's panel have spoken to the biology of this invasive plant species with far more eloquence and precision than I could hope to repeat. I would like to speak specifically to the problem itself and what we are doing about it.

Rural Colorado has known of the damaging effects of tamarisk for quite some time. It increases the salinity of rivers, increases the threat of wildfire, and degrades wildlife habitat. But until the extreme drought that Colorado faced last year the worst in 300 years the majority of the public simply had not focused on the issue. The nature of tamarisk allows it to absorb far more water than native vegetation does and so as our rivers and streams began to dry up last summer, we naturally began looking at some of the conditions we can control.

We know as a result of the extensive research already accomplished on tamarisk that we could dramatically improve hundreds of thousands of acres of riparian ecosystems by removing tamarisk and replacing it with native vegetation such as cottonwood trees and willows. And despite allegations to the contrary by some scientists, our state wildlife professionals are confident that we can change these habitats for the better without harming sensitive species.

As a result of increased public attention on the drought in Colorado, Governor Bill Owens issued an executive order this past January directing state agencies to work with the federal government, local governments, as well non-profit groups and institutions of higher education, to identify partnerships and funding necessary to rid the state of the non-native tamarisk weed within a decade. Since that time, we have been gathering information that will allow us to provide the Governor with a cohesive strategy to actually remove tamarisk in Colorado.

Governor Owens used his Fifth Annual Colorado Cares Day this past July to bring volunteers together specifically for the purpose of removing tamarisk. Hundreds of volunteers from all across Colorado gathered together to help remove tamarisk from state parks and waterways. Colorado has donated thousands upon thousands of dollars for tamarisk removal on state lands, but recently has also donated resources to various non-profit partnerships working toward tamarisk control. As a case in point, the Nature Conservancy has partnered with local governments, federal agencies, and the State of Colorado to attack the San Miguel river drainage in Western Colorado. We believe that TNC and our other partners will have the San Miguel free of tamarisk within five years. So we know these projects can be effective and we know there is state and local support for such efforts. We have also been able to raise the public's awareness of the issue through the Governor's executive order, through statewide volunteer efforts, and by working with our partners in the non-profit sector, such as TNC and the Tamarisk Coalition. What we need is concentrated support from the federal government.

The primary need that Colorado has is funding for on-the-ground projects. We have identified water users, state agencies, counties and local governments, as well as conservation organizations, all of whom have the capacity to provide matching funds, but are very hesitant to get involved financially without some assurance that the resources they contribute will have a measurable impact.

Here is where the Senate, specifically via Sen. Campbell's and Sen. Domenici's tamarisk bills, can be of great assistance. If the federal government could provide matching grants to states, administered by the governors and based on a formula of tamarisk-infested acres in the respective Western states, we believe Colorado can generate very effective projects with all of the right stakeholders and really begin to make a difference.

In a time of tight budgets and difficult national security decisions, we understand that a large federal appropriation is not always feasible. This is not to suggest that funding for research and other ancillary issues is not appropriate. But specific to funding removal projects, we would recommend that instead of continuing to spread weed management resources across multiple federal departments and agencies, it would be far more effective to provide grants to governors who already have strong partnerships built and can leverage those dollars beyond what the federal government could do alone. We vigorously support the passage of tamarisk legislation out of the United States Senate that will provide governors the opportunity to remove this invasive species through already-established local partnerships.

Senator MURKOWSKI. Thank you. We appreciate your testimony. Sticking with the tamarisk issue, Ms. Hughes.

STATEMENT OF DEBBIE HUGHES, EXECUTIVE DIRECTOR, NEW MEXICO ASSOCIATION OF CONSERVATION DISTRICTS

Ms. HUGHES. Thank you, Madam Chairman.

My name is Debbie Hughes and I am the executive director for the New Mexico Association of Conservation Districts. So I appreciate being able to be here and represent the 47 soil and water conservation districts in New Mexico. They are partners with many State and Federal agencies and a local delivery system for a lot of programs like the ones in the Tamarisk Control and Riparian Act and the Salt Cedar Control Demonstration Act will fund.

S. 1516 requires an assessment of the extent of the salt cedar infestation in the Western United States. This is very important. We are currently trying to gather some of that information. We feel that the soil and water conservation districts can be and are an essential partner because we can work on private lands, State land, Federal land, and tribal land.

We are putting this into practice right now. We are currently working with five pueblos in New Mexico, the Bureau of Land Management, the Bureau of Reclamation, the U.S. Fish and Wildlife Service, as well as the State lands and many, many private landowners.

We support the requirement in the legislation to implement various types of control methods. We realize we have got to have integrated types of control. Our experience to date is showing there is a wide variance in the cost of the types of control. Currently we are spending around $200 per acre for aerially applying a herbicide to kill the salt cedar, in comparison to an average of $3,000 per acre for different types of mechanical control. So it is going to take integrated approaches.

We know there is going to be challenges to being able to restore and maintain these infested lands and we do appreciate there is some focus on that within this legislation.

We are extremely pleased with this bill requiring monitoring and documentation of water savings. That is a big question, how much are we actually going to gain. We think there is a lot of new technology that can help us look at that.

We also really appreciate the support—and support the cost-share portion of this. We think that it is going to enable buy-in and support from the local and the State level. We with the soil and water conservation districts look forward to working with our State and local government to help come up with that local match.

Just prior to coming up here, the Friends of Rio Rancho and the Pueblo of Isleta called and asked that I be sure and express their support for this legislation. They are desiring additional funding and wanting to continue working with us.

S. 1236 provides grants to States, which is also a concept that we support. It allows for more local decisionmaking and control of the projects by the local, State, and Federal agencies within each State, depending on who desires to be involved. Both of these bills have language that allow for the local soil and water conservation districts to be involved with the implementation of the research and control activities. Our partnership, core partnership with the USDA and RCS and other different agencies enable us to be a catalyst in working with private landowners and others on a watershed basis. We applaud your wisdom for including us and we will work hard to help Congress do a very good job if we are able to get these programs.

I will just add a few words from my written testimony. I would like to also add that in New Mexico we have just recently received in the last 2 years $6.2 million specifically focused on salt cedar control and restoration efforts. So we are actively involved in this. Some of that funding is going on Federal land. We have got some going to the Bureau of Reclamation lands, some on U.S. Fish and Wildlife. We are doing some partnership programs with the BLM.

So we are showing that we can work with diverse groups, pueblos. We have got a lot of things going on in the Rio Grande, actually with like the nature center, the city of Rio Rancho, the city of Bernalillo Hispanic cultural center. We are working with Acequias in New Mexico and land grants.

So we applaud this effort. We are very supportive and will do whatever we need to do to help Congress make this happen. Thank you very much.

[The prepared statement of Ms. Hughes follows:]

PREPARED STATEMENT OF DEBBIE HUGHES, EXECUTIVE DIRECTOR, NEW MEXICO ASSOCIATION OF CONSERVATION DISTRICTS

The New Mexico Association of Conservation Districts would like to go on record as supporting S. 1516, the "Salt Cedar Control Demonstration Act" and S. 1236, the "Tamarisk Control and Riparian Restoration Act".

We are currently conducting projects in New Mexico funded by the state legislature that would greatly benefit from the passage of one or both of these bills. New Mexico legislature appropriated 5 million dollars in 2002 to be utilized on the Pecos and Rio Grande Rivers for the eradication of non-native phreatophytes. Another 1.2 million was appropriated in 2003 for the same purpose. The legislature also appropriated an additional $100,000 for a pilot project, utilizing goats on the Rio Grande.

This funding is appropriated to the soil and water conservation districts in New Mexico.

The conservation districts are also pursuing additional funds and programs for the restoration of the riparian areas. One of the federal programs being utilized is the Corps 1135 program entitled "Bosque Restoration".

The Bureau of Reclamation (BOR) is benefiting from some of these state dollars as they have completed an environmental analysis on the Rio Grande and we are treating 7,641 acres in southern New Mexico.

On the Rio Grande, another successful cooperative effort was with the US Fish & Wildlife Service to work on the Sevilleta National Wildlife refuge, which included work on another 1,200 acres utilizing state and federal dollars.

The Bureau of Land Management (BLM) is also cooperating with the local soil and water conservation districts through a MOU and 1,900 acres of BLM land benefited from our state dollars while another 1,150 acres of BLM was treated with federal dollars through a local cooperative effort.

Our project in New Mexico is working with a tremendous number of partners. On the Pecos River in 2002, we treated 9,100 acres of salt cedar spanning 185 miles of river and worked with 409 private landowners.

On the Rio Grande, we have treated 700 acres of land for the Santo Domingo Pueblo, over 1,000 acres of land for the Isleta and Laguna Pueblos with aerial application. We have also completed mechanical work on the Nambe and Pojoaque Pueblos. Soil and Water Districts are conducting mechanical work on the Rio Grande on lands that belong to the Middle Rio Grande Conservancy District, City of Bernalillo, Rio Rancho, Nature Center, Hispanic Culture Center, Acequias and private landowners. In the Southern Rio Grande we have completed work in the city of T or C and Leasburg State Park.

We have several on-going partnerships working with us on monitoring efforts such as the UNM Bosque Ecosystem Monitoring Project, the FS Rocky Mountain Research center, and the Carlsbad Environmental Monitoring Center.

USF&W has just recently approved the release of leaf beetle at 20 new sites in 7 states of which one of those sites is located in New Mexico.

Soil and water conservation districts in New Mexico are also taking advantage of other sources of funding such as the Collaborative Forest Restoration Program to fund removal of salt cedar, which are high fuel hazards near communities.

We supported legislation that allows for a corporate income tax credit for companies utilizing biomass including salt cedar passed and it became law in NM.

Conservation districts that have not been funded by the state legislature direct appropriation have applied for and received funding to do additional work through the "Water Trust Board" in several areas of the state.

We welcome the requirements for cooperation in S. 1516 and S. 1236 and also for the required matching cost share.

Senator MURKOWSKI. Thank you. It is good to hear the collaborative process is working.

Next let us go to Ms. Holly Stoerker. Welcome.

STATEMENT OF HOLLY STOERKER, EXECUTIVE DIRECTOR, UPPER MISSISSIPPI RIVER BASIN ASSOCIATION

Ms. STOERKER. Thank you, Madam Chairman. My name is Holly Stoerker and I am the executive director of an organization called the Upper Mississippi River Basin Association, which was formed 22 years ago by the Governors of the five States that border the upper river, and those would be Wisconsin and Minnesota and Illinois and Iowa and Missouri.

First, I would like to thank Congressman Kind for his leadership in addressing what we have come to recognize in our basin as being one of the most problematic and persistent issues, which is sedimentation and of course nutrients, which we have seen in the headlines perhaps more recently. But sediment in particular is a problem for us because not only does it fill in our valuable backwater habitat areas on the Mississippi River, but it also fills in the navigation channel and so the Corps of Engineers has to dredge the channel in order to maintain a safe navigation system for commercial navigation.

I think that is why, as Mr. Kind noted earlier, we have a noncontroversial bill. We are dealing with an issue that is a problem for everyone.

I am here today on behalf of the five States that border the Upper Mississippi River basically with a very simple message, which is we need what H.R. 961 is seeking to establish, which is an integrated monitoring and modeling network for not only the river but the whole basin, so that we can better understand sediment transport and nutrient transport, so that we can not only take care of our own rivers and streams, but also the stewardship of the Gulf of Mexico, our downstream water resource.

Let me assure you that our organization is not the only one, of course, that is interested in not only a scientific approach to these issues in our basin, but this bill in particular. As I believe Mr. Kind alluded to earlier, nearly 2 years ago we had 6 governors from our basin—tripartisan, by the way; Mr. Ventura is no longer in Minnesota, but at the time made the letter a tripartisan letter—not advocating this particular piece of legislation, mind you, but certainly the exact same thing that this piece of legislation is seeking to do.

Similarly, as Mr. Kind and I believe Dr. Hirsch also mentioned, this bill is very consistent with recommendations that came out in January 2001 from the Mississippi River-Gulf of Mexico Watershed Nutrients Task Force, which more recently actually formed a particular work group to design a science strategy for the basin to look at nutrient modeling and monitoring and in fact within the next couple of weeks are expected to release the report, which, although still draft in form, is actually recommending very much what this bill, H.R. 961, is seeking to establish.

I am not going to review all the points in my testimony, but I do want to emphasize one before I close, which is that in establishing a new USGS monitoring program we must not do it at the expense of our existing programs. There is a very practical reason that I say that. We simply cannot assess nutrient and sediment transport without good flow data. It seems that nearly every year

we struggle to maintain funding for the U.S. Geological Survey's national stream flow information program.

As part of that program, USGS operates about 650 stream gauges in our 5 States and the upper basin. But we have lost 80 of those gauges because of funding cutbacks in the recent past. So we cannot launch new initiatives, regardless of how well they are needed, without maintaining what we have already got, which is the flow data.

I would be happy to answer any questions and we look forward to implementing this program in partnership with the U.S. Geological Survey.

[The prepared statement of Ms. Stoerker follows:]

PRPARED STATEMENT OF HOLLY STOERKER, EXECUTIVE DIRECTOR, UPPER MISSISSIPPI RIVER BASIN ASSOCIATION

Good morning. Thank you, Chairman Murkowski and Members of the Subcommittee, for this opportunity to appear before you. My name is Holly Stoerker and I am Executive Director of the Upper Mississippi River Basin Association (UMRBA). The Governors of Illinois, Iowa, Minnesota, Missouri and Wisconsin formed the UMRBA in 1981 to coordinate the state agencies' river-related programs and policies and to work with federal agencies on regional issues. On behalf of our member states, I am pleased to offer the following comments regarding the Upper Mississippi River Basin Protection Act (H.R. 961).

OVERVIEW

The Upper Mississippi River Basin Association (UMRBA) is a strong supporter of efforts to reduce sediment and nutrients in the basin. As such, the UMRBA enthusiastically supports the Upper Mississippi River Basin Protection Act (H.R. 961).

The UMRBA applauds the leadership of Representative Ron Kind and his House colleagues on the Upper Mississippi River Congressional Task Force in addressing water resource needs in the basin and their commitment to providing sound scientific data upon which to make water resource management decisions. The UMRBA has worked closely with the sponsors of H.R. 961 on previous versions of the legislation including H.R. 4013 in the 106th Congress and H.R. 1800 and H.R. 3480 in the 107th Congress. The fact that this legislation has been introduced in three Congressional sessions and undergone numerous changes in response to suggestions from both state and federal water agencies, as well as stakeholders in the basin, is testimony to the tenacity and patience of its sponsors. The UMRBA is hopeful that this Senate hearing marks the final leg of the journey to enactment of H.R. 961.

THE IMPORTANCE OF MONITORING AND MODELING

Both sediment and nutrients have a profound affect on the quality of lakes, rivers, and streams throughout the Upper Mississippi River Basin. Sediment fills in valuable wetlands and streams throughout the basin, as well as the unique backwater habitats and navigation channel of the Mississippi River. Excess nutrients degrade water quality, impairing rivers and streams and threatening ground water supplies. In addition, excess nutrients from the Mississippi River Basin have been linked to oxygen depletion in the Gulf of Mexico, resulting in what is known as Gulf hypoxia. Meeting these challenges will require significantly enhancing our understanding of sediment and nutrient sources, mobilization, and transport. The monitoring and modeling program authorized in H.R. 961 is not a scientific luxury; it is a management imperative. The data and information that results from these efforts will help guide federal, state, and local programs designed to solve the very real problems of water quality and habitat degradation. Targeting our efforts to restore wetlands, reduce non-point pollution, and help agricultural producers apply best management practices, depends on good scientific data.

The need for enhanced sediment and nutrient monitoring in the Upper Mississippi River Basin is widely recognized. In the January 2001 "*Action Plan for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico*," state and federal agencies participating in the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force called for "increasing the scale and frequency of monitoring of both the extent of the hypoxic zone and the sources of nutrients and conditions of

waters throughout the basin." In an October 23, 2001 letter to Bush Administration officials, six Governors of Mississippi River Basin states urged that federal programs to reduce nutrient inputs be enhanced. In this regard, the Governors stated that a "monitoring effort conducted jointly by the U.S. Geological Survey and the states is required within the basin to determine the water quality effects of the actions taken and to measure the success of efforts on a sub-basin and project level." H.R. 961 reflects just the type of increased monitoring effort that has been proposed by both the Task Force and the Governors.

SPECIFIC COMMENTS ON H.R. 961

Sediment and Nutrient Monitoring Differences—The monitoring network and modeling efforts described in H.R. 961 are designed to address both sediment and nutrients. However, the sources, transport, delivery, and impacts of sediment and nutrients are not identical and will require different monitoring and modeling approaches. Moreover, there are natural baseline levels of sediment and nutrients that would occur without human activity. For many water bodies in the basin, acceptable levels of sediment and nutrient impairment have not been identified. While it may not be necessary for the legislation to explicitly acknowledge or accommodate these considerations, they will be critical in the design of the monitoring network and in development of the models. In part, this is why Section 104 of the bill is a key provision. Section 104 requires that USGS collaborate with other federal agencies, states, tribes, local units of government, and private interests in establishing the monitoring network. Such collaboration should help ensure that the design of the monitoring network yields data that is relevant to both sediment and nutrient management issues.

Relationship to Existing Efforts—Sections 103 and 104 require that USGS coordinate with other agencies and programs and build upon existing monitoring efforts. Such provisions are critical to the ultimate success of the new monitoring and modeling initiatives authorized in H.R. 961. For example, it is important that a basinwide monitoring network be linked to on-going work in the basin's tributary watersheds, such as the sediment transport modeling in the Illinois river watershed, cooperatively sponsored by the State of Illinois and the Corps of Engineers. In addition, the Monitoring, Modeling and Research Workgroup of the Mississippi River/Gulf of Mexico Watershed Nutrients Task Force will soon release its recommended "*Science Strategy to Support Management Decisions Related to Hypoxia in the Northern Gulf of Mexico and Excess Nutrients in the Mississippi River Basin.*" It is our expectation that the monitoring network and modeling activities authorized in H.R. 961 be designed and implemented consistent with the framework being developed by the interagency Task Force.

Additional New Funding—Section 301 of H.R. 961 authorizes annual appropriations of $6.25 million for this new monitoring and modeling effort. It will be imperative that this funding represent additional new resources, rather than a redirection of existing resources. H.R. 961 emphasizes integration of existing monitoring efforts and use of existing data, a strategy that will certainly help to leverage scarce resources. However, integration of existing efforts is not a substitute for a real increase in the level of effort. And most importantly, this increased effort must not come at the expense of other important USGS programs such as the National Water Quality Assessment Program (NAWQA) or the National Streamflow Information Program (NSIP). In particular, stream-gaging supported by NSIP provides flow data that will be critical to successfully monitoring and modeling sediment and nutrient loads. We cannot afford to lose any of that stream-flow data, and in fact will likely need to increase discharge measurements.

Cost-Sharing—The states are pleased that the cost-sharing requirements in Section 302 of H.R. 961 reflect a more practical approach than was embodied in previous versions of the bill. In particular, H.R. 961 relies upon existing USGS program accounts and cost-sharing provisions to fund this new initiative. Given the geographic scope of the basin and the complex array of potential nonfederal partners, aggregating contributions to ensure compliance with cost sharing requirements in prior versions of the bill would have been virtually impossible.

National Research Council Assessment—Section 106 of H.R. 961 directs the National Research Council of the National Academy of Sciences to conduct a "comprehensive water resources assessment of the Upper Mississippi River Basin." In the context of this legislation, it is our assumption that such an assessment would be focused on the specific water quality issues associated with sediment and nutrients. As such, it would potentially provide important input to the scoping and implementation of the monitoring and modeling authorized in H.R. 961.

Thank you for the opportunity to share the basin states' views with you and underscore their strong support for H.R. 961.

Senator MURKOWSKI. Thank you. I appreciate your testimony, and I will follow up with my questions to you first.

You just indicated that you do not want to move forward with this monitoring at the expense of what is already in place there. My question to you would be, it does appear that there is a fair amount of monitoring already in the area, both the monitoring and the analysis. So you have ongoing programs, you have an existing effort ongoing. Why do we need an additional effort and an expansion, essentially, of funding for USGS and their partners?

So just define for me very clearly why we do one more?

Ms. STOERKER. Well, there are a couple of reasons, one certainly being that, as I just alluded to, much of the monitoring that is done is not always targeted at the particular pollutants we are looking at, in this case sediment and nutrients. But I think more importantly, what we are talking about is not only the data-gathering right at stream and river level, but integrating that in a way that we can come to a better understanding of how it all moves throughout our basin and affects the gulf.

That is not an issue which, even though we may be doing monitoring of our local streams and rivers, we are necessarily directing that monitoring and that research towards. There are different science questions for us. So with that we need leadership at the national level through USGS to help integrate the work that is already being done, as well as add value by some additional monitoring.

Senator MURKOWSKI. So in your view it is not duplicative; it will just enhance and integrate what is existing?

Ms. STOERKER. That is right. I think that there is a section of the bill—I cannot recall offhand; perhaps section 104—that specifically talks about integrating the existing data. In other words, we are not just collecting new data, but we are looking at ways to use what we already know and in that way add value.

Senator MURKOWSKI. Great, thank you.

The questions that I will ask next to the three of you who have given your testimony on the salt cedar-tamarisk issue, you can all just jump in where appropriate. I have to admit that I have learned a great deal about this plant. We do not have it in Alaska and, based on what I have heard today, I want to make sure that we do not get it in Alaska.

But from what I understand, where you are able to eradicate it—the whole point here is that we are going to see savings in water, that more water will actually be made available. But apparently it comes initially from the shallow groundwater and only a portion of the water that is saved actually gets out into the adjacent rivers, or that is what they have said the experience is in the Pecos River.

I would ask any of you to comment on how well we actually understand how the water savings work and what monitoring needs to be done to understand how we actually get the surface water recovery. Any of you?

Mr. CARLSON. I will jump in.

Senator MURKOWSKI. Jump in.

Mr. CARLSON. There has been an awful lot of work done in this area. It has been done principally in the States of New Mexico and Texas most recently, but other places throughout the West it has also been looked at. That is the water availability after tamarisk control has taken place.

That information is not conclusive by any means. In some areas there seems to be a gain that occurs, in other areas there does not; there seems to be groundwater changes that do occur. One of the things that has happened in the past is there has not been a well-focused effort that combines the large-scale demonstrations with this applied research that is tied to it, like Senator Domenici's bill would include.

Like Debbie Hughes pointed out, it is very important that this monitoring activity be part of any major demonstration activity so that we in the future really know better the water changes, the changes in water availability that will take place, as well as the changes in water quality, because if there is more water that occurs in the river system that also means the water quality should improve. There is some work that has shown that, especially in the Texas area.

Debbie, you have got some recent stuff I think.

Ms. HUGHES. Madam Chairman, what we believe is it is going to be variable depending on the location, the depth to water, the type of soils. There is just going to be a lot of variables. But what we are seeing is, if this work is done directly on a stream system, the tamarisk had more access to water, there is going to be water available in the system for other uses, whether it is for plants that create wildlife habitat or actually stream flow or helping to recharge our aquifers.

But there are so many variables. We do have a couple of small successes in New Mexico just recently. Where you do work where there historically were springs, I think we are seeing a lot more immediate response. Actually we have got a flume up near Santa Fe that has shown just 30 acres were treated and we have got an increase in flow there, and that is without additional rainfall. We are seeing some groundwater monitoring wells that are coming up.

I do not think we are able to show how much is going to be in the streams, but we know that these non-natives by all of the transpiration data studies that have been done are using about twice what native trees like a cottonwood would use. So we are real excited about this, but we think there is a lot of information that we do need to look at, and it is going to really vary depending on the location and a lot of other variables.

Senator MURKOWSKI. That was going to be my next question: some specific examples of where you have seen the benefit, the value. Mr. Marshall, you mentioned something in San Miguel basin, but did not really go into much more detail about it. But we are able to quantify the benefits then of eradication in specific areas?

Mr. MARSHALL. Madam Chairman, I will expand on that a little bit. The San Miguel basin is one of the few free-flowing rivers in western Colorado and we see there probably as close to a natural, native ecosystem as we think maybe exists in our part of the world. So part of what the effort in the San Miguel basin is intended to

do is to maintain that ecosystem, because there are a lot of rare plants where you just do not see those, the complexity, as you do in other parts of the world.

We also have there a tamarisk infestation that is less severe than in some parts of the State, and so we are able to attack that in a much more individualized way. There are places in western Colorado that it is so thick and such a monoculture that it makes it much more difficult to get to. So what we would see in the San Miguel would probably be less drastic in terms of changes in water yield because it simply has not gotten hold. But that is also what allows us, is allowing us, to attack that region a little bit more aggressively, because we know we can make an impact in a fairly short order.

But as to the science of it, I will not go into that. I am certainly not a biologist. But I can tell you that in terms of the policy in treating we are excited about that basin because it has not taken the foothold it has in some other areas. But it is certainly going to take a much bigger effort, and I would anticipate that we would see a much larger difference in the flows and the hydrology in some of these areas where it has taken a much bigger grip, such as the main stem of the Colorado or the Arkansas River.

Senator MURKOWSKI. One of the points that was made was that just the wide range of estimates, the cost to eradicate. I think, Ms. Hughes, you mentioned that it can range from $200 to I think you said $3,000 an acre to deal with this. Recognizing just the magnitude, the area that we are talking about—I mean, this is a huge, huge, huge project—what kind of funding mechanisms are currently in place or being developed to support the control on State or private lands?

I know you have mentioned matching funds, but what kind of initiatives are out there currently?

Mr. MARSHALL. I will just speak to a couple of things in Colorado. Governor Owens this last January, partially as a reaction to the drought, issued an executive order that within a decade he would like to see tamarisk removed from Colorado. The complexity of that order you can appreciate, I am sure, because part of what we are tasked with doing is coming up with a funding strategy that will allow us to accomplish that.

There are things that the State does as a matter of, well, say, fulfilling compact requirements. We must do an aerial survey of irrigated acreage as part of our compact agreements with other States on various rivers. Something that we are moving towards is just tying in tamarisk inventory as a part of that. We are up there anyway. We have experts that know what to look for. That is something the State can very easily take control of and save the Federal Government money in terms of a bill like this, where we are able to take some efforts that are already under way and help defray some of the costs to avoid duplication.

I know that that has been probably—I know that has been addressed in some of the bills in terms of inventorying, but I would just suggest that there are places where we are already duplicating and we would have partnerships with nonprofits, with water conservancies and things that are already out there, that the States

already have some of those partnerships and funding mechanisms in place.

What we do not have are the larger dollars to go after some of the large land, the large acreages that we are talking about in several parts of Colorado along the main stem, the Arkansas, and things like that. Those are a few of the things that we have been able to do in terms of the State specifically.

Senator MURKOWSKI. Ms. Hughes.

Ms. HUGHES. Madam Chairman, we also are pursuing State and local funding as well as incentives. The State legislature in New Mexico did create what is known as a water trust fund through the Water Project Finance Act. We are also utilizing other programs through USDA, through the farm bill EQIP program. We have also been able to match some of our State funding with other programs, like through the Forest Service for collaborative forest restoration for fire prevention.

But this past legislative session the New Mexico legislature also passed legislation that gave a corporate income tax credit for companies that utilize the biomass, and they were very explicit that it also included salt cedar. There was language in there. So we are looking for other innovative approaches that will hopefully help build businesses in the rural areas to utilize this woody species besides just coming here with our hands out to the Federal Government. We realize that it is going to take everybody working together.

Thank you.

Senator MURKOWSKI. Just one last question, again for all of you. We have not really talked about how you eradicate it. I have been told some of the methods. But what about things like, we have a lot of spruce bark beetle up in Alaska that decimate our trees. Not that we want to share these and allow you to have another outbreak of even worse invasive species, but what about things like beetles or goats, some of the other alternatives to controlling this?

Mr. CARLSON. I have some very recent information. USDA and Interior people have been working for almost 15 years now in identifying a biocontrol agent that would be very plant-specific. It would just attack tamarisk and nothing else. They have found one they feel is really pretty ideal. It comes from China and, because it is a non-native species to this country, they have to go through a very rigorous program that APHIS—and I cannot recall what the acronym for "APHIS"—Animal and Plant Health and something Service, under USDA—requires them to go through.

They have had releases of this insect—it is a leaf beetle—that in Nevada, Wyoming, Colorado, and Utah has shown significant success to a point on a ranch in Nevada where it has totally defoliated over 400 acres. That will be an approach that can be added to the other approaches, that could greatly reduce the cost. It may reduce the cost down, instead of hundreds of dollars or thousands of dollars per acre, down to tens of dollars per acre, so getting it down significantly below.

But like a number of people have pointed out, no one approach will work everywhere. So you have to use integrated pest management where you tailor the approach to the situation.

We would love to have your whatever the beetle is that is infesting your area, but I suspect that it probably would go after a more palatable, other pine trees or whatever. We do not want it. Just like we do not want—we will not do a trade. We will not give you tamarisk, we do not want the beetle from Alaska.

Senator MURKOWSKI. That sounds fair.

I appreciate the testimony that you all have given this afternoon. It has certainly been very helpful for me on a number of issues. I appreciate the attention of all that have come to listen this afternoon as well as testify and again appreciate your time.

Thank you, and with that we will conclude the hearing.

[Whereupon, at 4:11 p.m., the hearing was adjourned.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

September 15, 2003.

Hon. PETE DOMENICI,
Hart Senate Office Building, Washington, DC.

DEAR SENATOR DOMENICI: I wanted to provide comments on S. 213, which would convey title to Tingley Beach and San Gabriel park properties to the City of Albuquerque from the United States.

First, let me state that the Middle Rio Grande Conservancy District ("MRGCD") fully supports the City's right to ownership of that land and supports passage S. 213.

Certain timing issues may be relevant. For example, the MRGCD suit to this same property is scheduled for Trial early in the coming year, and by the Doctrine of "Worthier Title," if we prevail, the title to the City's property will be cleared.

Second, in addition, the issue of Federal ownership of Bureau of Reclamation properties is in dispute throughout the West. Congressional action in the case of the City might be cited as an example of why the Congress, not the Courts, should clear title.

Finally, the Petition for Rehearing pending in the 10th Circuit Court of Appeals in *RGSM* v. *Keys* might also clarify this issue.

I believe it might be useful for you and your staff to have this information.

Sincerely,

SUBHAS K. SHAH,
Chief Engineer/CEO.

STATE OF NEW MEXICO,
DEPARTMENT OF GAME & FISH,
Santa Fe, NM, September 15, 2003.

ERIK WEBB,
Senate Energy and Natural Resources Committee, Hart Senate Building, Washington, DC.

Re: S. 1236 "Tamarisk Control and Riparian Restoration Act." NMDGF Doc. #8916

DEAR SIRS: The New Mexico Department of Game and Fish (Department) has reviewed bill, S. 1236, a bill to direct the Secretary of the Interior to establish a program to control or eradicate Tamarisk in the Western United States, and for other purposes. The Department supports the goals of restoration of native riparian habitats addressed by this bill. The department also urges the long-term fiscal support of this project to assure complete restoration of native habitats.

We appreciate the opportunity to comment on this document. Should you have any further questions please contact Michael Roedel, Aquatic Habitat Biologist, of my staff at 476-8091 or mroedel@state.nm.us.

Sincerely,

LISA KIRKPATRICK,
Chief Conservation Services Division.

STATE OF NEW MEXICO,
DEPARTMENT OF GAME & FISH,
Santa Fe, NM, September 15, 2003.

ERIK WEBB,
Senate Energy and Natural Resources Committee, Hart Senate Building, Washington, DC.

Re: S. 1516 "Salt Cedar Control Demonstration Act." NMDGF Doc. #8915.

DEAR SIRS: The New Mexico Department of Game and Fish (Department) has reviewed bill, S. 1516, a bill to further the purposes of the Reclamation Projects Authorization and Adjustment Act of 1992 by directing the Secretary of the Interior, acting through the Commissioner of Reclamation, to carry out an assessment and demonstration program to assess potential increases in water availability for Bureau of Reclamation projects and other uses through control of salt cedar and Russian olive. The Department supports the goals of restoration of native riparian habitats addressed by this bill. The department also urges the long-term fiscal support of this project to assure complete restoration of native habitats.

We appreciate the opportunity to comment on this document. Should you have any further questions please contact Michael Roedel, Aquatic Habitat Biologist, of my staff at 476-8091 or mroedel@state.nm.us.

Sincerely,

LISA KIRKPATRICK,
Chief Conservation Services Division.

STATEMENT OF MARTIN J. CHAVEZ, MAYOR, ALBUQUERQUE, NM

Thank you for inviting me to testify on Senate Bill 213.

The City of Albuquerque is the victim of a fight between the Federal government and the Middle Rio Grande Conservancy District over water. The fight has jeopardized the development of Albuquerque's Rio Grande Biological Park.

In 1997, the City paid the Conservancy District $3,875,000.00 for Tingley Beach and San Gabriel Park in order to expand the Rio Grande Biological Park. The Federal government now claims that the City does not own the property. (United States District Court for the District of New Mexico Cause No. CIV 99-1320 JP/KBM-ACE, entitled *Rio Grande Silvery Minnow, et al.* v. *Eluid L. Martinez*, et al.) The Federal government claims that in 1953, in an unrecorded "Grant of Easement", the Middle Rio Grande Conservancy District conveyed fee title to all of its property to the Federal government. If the claim is valid, the Middle Rio Grande Conservancy District did not own Tingley Beach and San Gabriel Park in 1997, and under Reclamation law, title to the property can be conveyed to the City only by an act of Congress.

The Middle Rio Grande Conservancy District suggested that the parties seek Congressional action to clear the City's title to Tingley Beach and San Gabriel Park. The Middle Rio Grande Conservancy District also suggested the method which is incorporated in Senate Bill 213 to resolve the issue in a way that will not jeopardize the Middle Rio Grande Conservancy District's or the United States' claims in the litigation over ownership of Middle Rio Grande Project property. The City agrees that the Middle Rio Grande Conservancy District's suggestions will remove the cloud on the City's title to Tingley Beach and San Gabriel Park and permit the City to proceed with development of the property.

The City plans to invest $15,300,000.00 of City funds to improve and develop Tingley Beach and San Gabriel Park for the Rio Grande Biological Park. The City cannot, however, risk the investment of public funds to improve property it may not own. Until the cloud on the City's title to the property has been removed, the City cannot improve Tingley Beach and San Gabriel Park and complete the Rio Grande Biological Park.

Because of their location and characteristics, Tingley Beach and San Gabriel Park are unique properties for the development of the Rio Grande Biological Park. Monetary damages or the purchase of other property will not permit the City to develop the unique, high quality park that it can develop by improving Tingley Beach and San Gabriel Park.

The Conservancy District leased Tingley Beach to the City in 1931 and San Gabriel Park in 1963. The City has been in possession of the property since that time. The Conservancy District has not used the property and there are no reclamation works on the property. The Bureau of Reclamation recently determined that Tingley Beach and San Gabriel Park is surplus to the reclamation project and that the Bureau of Reclamation does not want the property.

The enactment of Senate Bill 213 will remove the cloud on the City's title to Tingley Beach and San Gabriel Park and permit the City to complete the development of the Rio Grande Biological Park.

Rio Grande Bioloqical Park

The Rio Grande Biological Park lies along the east side of the Rio Grande River north and south of Central Avenue, which is historic Route 66 through Albuquerque. It is an educational, research and recreational treasure, that provides a unique and vital view of New Mexico and our biologically diverse world, not only for the residents and visitors to Albuquerque, but for the State of New Mexico. When completed, the Rio Grande Biological Park will instill in the public a recognition of the need for water conservation, habitat conservation, the interdependence of life and environmental stability that is essential to our future as a community, state and nation; support and enhance environmental education, awareness and stewardship; and provide a recreational, cultural and educational facility and resource that uniquely portrays the cultural, environmental and ecological aspects of the Rio Grande River.

The Rio Grande Biological Park occupies 170 acres and consists of the Rio Grande Zoo, Tingley Aquatic Park, and the Albuquerque Aquarium and Botanic Garden. Tingley Aquatic Park will be constructed on the site of Tingley Beach and the Botanic Garden will be expanded into San Gabriel Park.

Tingley Beach consists of 35.3 acres and is located south of Central Avenue between the Rio Grande Zoo and the Albuquerque Aquarium and Botanic Garden. It was created when Mayor Clyde Tingley, who later became Governor of New Mexico, asked the Middle Rio Grande Conservancy District to lease burrow pits that had been dug to construct a levy to the City for a park and swimming beach.

The Albuquerque Aquarium and Botanic Garden is located north of Central Avenue across from Tingley Beach. San Gabriel Park consists of 42.7 acres and is located northwest of and adjacent to the Botanic Garden. In the late 1950's, the Conservancy District moved the Albuquerque Drain west and isolated a portion of the Rio Grande River channel. The Conservancy District leased this property to the City for park and recreation purposes.

Tingley Aquatic Park

Because it lies between the Rio Grande Zoo and the Albuquerque Aquarium and Botanic Garden, Tingley Aquatic Park is a key transitional and connecting element in the Rio Grande Biological Park system that is accessible by trail, road and eventually by a railroad.

Tingley Aquatic Park will be developed for water-oriented recreational use, education and environmental research and planning. Improvements will consist of five lakes for boating, deep-water fishing, children's fishing and model boating. One lake will be an observation lake. The City will also construct a swimming pool, picnic areas and facilities, and a building for group meetings and gatherings on the property.

As part of this project, the City will remove all non-native plants from the bosque adjacent to Tingley Beach and re-establish and maintain the Rio Grande cottonwood as the dominate canopy species. The City will also create additional wetlands and marshes that were historically abundant in the Rio Grande Valley.

The United States Corps of Engineers has plans to assist the City in the reclamation and construction of the lakes. The Corps of Engineers also plans, in association with the Rio Grande Zoo, to construct a bosque exhibit on property adjacent to Tingley Beach that will illustrate a succession sequence from an oxbow lake, to a cattail marsh, to a saltgrass meadow, to a bosque.

The City's and the Corps of Engineers' projects at Tingley Beach will improve wildlife habitat along the Rio Grande River at Tingley Aquatic Park.

Tingley Aquatic Park is also a part of the Rio Grande Valley State Park which was authorized by the New Mexico Legislature in 1983 to preserve, protect and maintain the natural scenic beauty of the Rio Grande River and its immediate riverine corridor. The City is the operator of the Rio Grande Valley State Park.

San Gabriel Park

The Botanic Garden was created to reflect the region's environmental and cultural heritage. The expansion of the Botanic Garden into San Gabriel Park will carry through with this theme. The improvements will include seventeen gardens, including a Japanese Tea Garden, conservatories, a tree nursery, botanic library, herbarium, office and meeting rooms, and support facilities.

The expansion at San Gabriel Park will include ethnobotanic exhibits which will offer the only place in the state to learn about the historic use of plants for fiber, food and medicine. An antique apple orchard will feature apple trees that were

brought to the area by Hispanic settlers. The Zuni Waffle Garden will illustrate ancient Anazazi Indian methods for conserving water and will feature ancient plants cultivated by the Anazazi. The City has already constructed the El Jardin de la Curandera exhibit at San Gabriel Park, honoring 400 years of Hispana presence in New Mexico and exploring herbal medicines used within the contexts of the practices of curanderismo.

A Period Farm will illustrate farming techniques and practices during the period from 1920 through 1940 which was the period of Albuquerque's greatest growth and transformation into an urban center.

The Trial Garden will feature new breeds of plants and the Camino de Colores will be a highway of flowers.

An exhibit entitled El Canoncito will provide the backdrop for the Conifer and Mountain Meadows exhibit and will illustrate the varied microclimates found in the mountain environments of New Mexico.

San Gabriel Park is in the cottonwood bosque (riparian forest) of the Rio Grande River and offers an unparalleled opportunity to showcase this distinctive natural environment. The expansion of the Botanic Garden into San Gabriel Park will include a Cottonwood Gallery of the magnificent existing stands of cottonwoods that remain to provide a living example of the native bosque.

The City, in cooperation with the State of New Mexico and the United States Bureau of Reclamation, has construct, at San Gabriel Park, the Rio Grande Silvery Minnow Rearing and Breeding Facility for breeding and conditioning the endangered Rio Grande Silvery Minnow for release into the Rio Grande River.

Rio Grande Bosque Railroad

The master plan for the Rio Grande Biological Park includes the construction of the three-quarter scale Rio Grande Bosque Railroad which will provide a transportation link that covers the four miles of the Rio Grande Biological Park between the Aquarium and Botanic Garden in the north, through Tingley Aquatic Park, to the Rio Grande Zoo in the south. A depot and turnaround will be constructed at San Gabriel Park and a depot will be constructed at Tingley Aquatic Park. The Rio Grande Bosque Railroad will also connect the national Hispanic Cultural Center south of the Rio Grande Zoo with the Rio Grande Biological Park.

The enactment of Senate Bill 213 will make the City's vision for a unique biological park possible. I urge your support of Senate Bill 213.

STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION ON S. 1236 AND S. 1516

The American Farm Bureau Federation (AFBF) is pleased to offer this statement for the hearing record in support of S. 1236 to establish a program for the control of salt cedar in the western United States, and S. 1516 to provide for a demonstration program to assess increases in water availability that might be achieved through salt cedar control.

Salt cedars were introduced into the United States from the Middle East in the 1800's. Salt cedar is a fast spreading plant that has invaded stream banks, bottomlands and riverbanks throughout the western United States. They are highly invasive plants, and once established are highly persistent. Today, salt cedar occupies more than a million acres from Texas to Tacoma. Salt cedar has substantially impacted the natural riparian and wetland ecosystems throughout the West.

The presence of salt cedar along riverbanks and in wet areas affects both water quantity and water quality. Salt cedar trees consume huge quantities of water, with each tree "capable of using tip to 200 gallons of water per day. In addition, salt cedar can excrete salt from its leaves, increasing the salinity of surrounding soil and waterways, making both the land and the water less useable for growing crops or forage.

The control of salt cedar is important to farmers and ranchers, and to all water users. It is a competitor for water in an already overcrowded field.

Demands for water in the western United States are increasing significantly. The West is the fastest growing region in the country. There are greater demands made through the Endangered Species Act and implementing court decisions to provide greater water to fish and wildlife. Requirements to keep minimum instream flows in rivers and streams are becoming more widespread.

At the same time that demand for more water is growing, the available supply of water is dwindling. The West has been in a prolonged drought for several years, an already scarce resource is even scarcer.

This combination of increasing demand and decreasing supply has led to serious conflicts among water users. The Klamath Basin in California and Oregon grabbed national headlines when the Bureau of Reclamation shut off water to over 1,400 farmers and ranchers in order to use project water for two endangered fish. Likewise, Albuquerque, New Mexico became a hotbed of controversy earlier this year when a federal appeals court ordered the Bureau of Reclamation to breach decades-old water contracts with farmers, ranchers and other landowners and to take their water to use for the endangered silvery minnow.

The water issue in the West has reached such a serious state that earlier this year the Secretary of the Interior announced the development of "WATER 2025," a blueprint to guide the Department and the federal government to prevent another confrontation among competing water users such as occurred in the Klamath Basin and Albuquerque.

With water such a critical issue, it makes little sense to allow the unfettered spread of an invasive plant that can take up to 200 gallons per day out of the water supply. Farm Bureau believes that control and eradication of salt cedar should be an essential component of any western water strategy.

Both S. 1236 and S. 1516 would require an assessment of the extent of the salt cedar problem in the West and the costs of its removal and restoration of the land. S. 1236 would create a Tamarisk Assistance Program to provide grants to the states for salt cedar control projects. S. 1516 would provide for five demonstration projects using different control methods to determine the most effective means of control, monitor and document the extent of any water savings, determine conditions under which biomass removal is appropriate, and identify methods for preventing regrowth and reintroduction.

Both bills are necessary and sound. States should be encouraged to control highly invasive and destructive species like salt cedar within their boundaries. Federal grants will allow states to undertake this needed control.

At the same time, research is needed to assess the most effective and efficient control methods, and also to measure the water savings that might result from salt cedar control.

Following are some specific suggestions for the bills:

1. Legislation should include provisions for farmers, ranchers and other private landowners to be eligible for grants and to participate in any demonstration projects. We suggest that both bills add provisions that provide for voluntary, incentive based programs for farmers and ranchers to control salt cedar on private lands. One incentive such a program might provide would be to allow farmers and ranchers to keep all or a portion of the water that is saved by salt cedar removal. For that to occur, projects would have to monitor water availability before and after cedar removal. Such programs might be administered either through the Department of the Interior or the Department of Agriculture with up to a 75 percent cost share as provided in the bills.

2. S. 1236 would provide federal grants to state programs to control salt cedar. We suggest that the bill contain a provision that streamlines the National Environmental Policy Act (NEPA) process for salt cedar removal projects. Grants should be used for on-the-ground activities as much as possible, and not for doing extensive NEPA paperwork.

3. The demonstration projects that would be created under S. 1516 should be allocated equitably in different areas of the region and among the tribes. In addition to providing demonstration projects based on different control methods, we suggest that demonstration projects also include different organizational structures, such as federal projects and private projects. One demonstration project should include a model for voluntary, incentive-based private landowner control projects.

Effective control of salt cedar will help provide a cleaner, more plentiful water supply to the water-starved West. Farm Bureau supports S. 1236 and S. 1516, and we look forward to working with the Committee to craft an effective salt cedar control program.

STATEMENT OF TOM W. DAVIS, MANAGER, CARLSBAD IRRIGATION DISTRICT, CARLSBAD, NM, ON S. 1516 AND S. 1236

I am Tom W. Davis. Since 1987, I have been the Manager of the Carlsbad Irrigation District. For the sixteen years prior to my current employment, I was employed by the U.S. Department of Agriculture Forest Service in the field of natural resources management. During the past fifteen years I have had extensive experience

in control and/or management of salt cedar (tamarisk spp.) in the Pecos Basin in New Mexico using chemical and mechanical methods.

In recent years, driven primarily by drought conditions and water demands throughout the western United States, a tremendous amount of interest has been generated in salvaging water by eradicating salt cedar and to a lesser extent, Russian olive. This movement has been promoted by some as the "Silver Bullet" to increasing flowing water and restoring native riparian vegetation in our rivers. It is all too easy to over-simplify the complex nature of river systems and over-promote the possible benefits of salt cedar removal while overlooking the possible unintended negative impacts of such actions or any environmental virtues salt cedar might provide.

When considering conducting large salt cedar and Russian olive removal projects costing millions of dollars, a list of simple questions should be resolved to the extent possible before proceeding with the larger projects. Those questions are simple: Why; How; How much (cost and amount of acreage); What are the intended results; What are the unintended consequences; How to mitigate for these unintended consequences.

I believe S. 1516, properly implemented, will provide the best answers possible to these questions.

Salt cedar and Russian olive control is not a new concept along the Pecos River. In 1946, Royce Tipton, a hydrologist working with the National Water Planning Board, convinced both the states of New Mexico and Texas to sign the Pecos River Compact appropriating the waters of the Pecos River between the two states. The primary underpinning of this allocation of the flows of the Pecos was the perceived water salvage potential resulting from the eradication of non-native phreatophytes (salt cedar).

Public Law 88-594, 78 Stat. 942 was signed on September 12, 1964 authorizing the Secretary of the Interior to carry out a continuing program to reduce non-beneficial consumptive use of water in the Pecos River Basin in New Mexico and Texas. The Bureau of Reclamation was charged with the responsibility of implementing this project. Eventually, 36,000 acres in New Mexico and about 17,000 acres in Texas were mechanically cleared in the Pecos River Flood Plain. The areas originally cleared are maintained as cleared today. Salt cedar was left on the river bank for bank stabilization. With the exception of McMillan Delta, this area represented about 85% of the existing acreage infested by salt cedar.

In 1988, G.E. Welder, a hydro-geologist with the U.S. Geological Survey, completed and published the results of a ten-year study attempting to quantify any additional base flows in a specific reach of the Pecos River resulting from eradication of 20,000 acres of salt cedar from that particular reach of the river flood plain. This study was not able to specifically quantify any increases in river base flows, but indicated that evapotransportation (ET) had been reduced by removing salt cedar from the flood plain vegetation. The study could only speculate as to the fate of any salvaged water made possible by a reduction in ET.

To date, the 5,000-acre demonstration project on the Pecos River that I have been involved with since 1993 has not shown any increase in river base flows, nor has it shown any rise in the ground water table measured at ten monitoring wells. Although we used the best methods available to re-establish native vegetation by pole planting and re-seeding, we have had only very marginal success. There has been an increase in wind erosion and an overall negative impact to wildlife. We have had problems with salt cedar re-establishment when conditions are favorable.

More of these demonstration projects should be conducted before large-scale projects are conducted. S. 1516 will provide for that. However, with respect to the Pecos River in New Mexico, with exception of the McMillan Delta just north of Carlsbad, an estimated 95% of all salt cedar has been killed. However, based on experience, I predict the salt cedar will readily re-establish on these areas when favorable conditions exist. Also, it is interesting to note that the base flows in the Pecos River have been lower this summer than any other time in recorded history.

However, in today's environment of increased demands on our river systems, we are obligated to investigate every option to maintain river flows. This legislation provides the opportunity to establish several demonstration projects. These projects will take another look at determining the merits of salt cedar removal, and monitor, measure and track any salvaged water and increased river flows. Using todays technology we must not only attempt to quantify actual water salvaged by reducing ET, but we must be certain of the environmental impacts, monetary costs and effectiveness associated with the different methods of salt cedar and Russian olive control. Also, we must mitigate the unintended consequences of removal of these species and prove reliable methods of re-establishing native vegetation. We must determine how to replace the virtues of salt cedar after its removal, such as stream bank stabiliza-

tion and nesting sites for birds and cover for other wildlife. Also, we need to focus on the detrimental effects of large scale ground water pumping on river flows.

These demonstration projects must be conducted in a variety of river systems throughout the western United States by non-biased professionals, representatives of federal and state agencies, universities, national laboratories and private contractors. The knowledge gained from these demonstrations will be critical in conducting proper future management of our riparian ecosystems and stabilizing river flows.

S. 1516 provides for all of these elements and more. I request that you vote in support of this bill.

It is my position that S. 1516 should be implemented to get at some of the unanswered questions before any large-scale control projects, as are provided for by S. 1236, are conducted. There are too many risks by immediately implementing S. 1236 before we know what the unintended consequences are, how to mitigate and the cost of this mitigation. Nature is not very forgiving here in the southwest. Any mistakes made might require decades to correct. I think S. 1236, in it's current form, should be put on hold.

Thank you for the opportunity to comment on these bills.

STATEMENT OF STEVE HARRIS, ALLIANCE FOR THE RIO GRANDE HERITAGE

Mr. Chairman, the Alliance for Rio Grande Heritage and its member groups have, over the past seven years, devoted their private resources to the problem of restoring the ecological health and integrity of the Rio Grande in Southern Colorado, New Mexico and West Texas. The Rio Grande problem is a difficult one stemming, as it does, from a century and a half of intensive development and control of land and water resources. Today, we are left with a river transformed by flood control and water diversion projects, a river that occupies only a portion of its historic floodplain and that retains a scant fraction of its natural water flows.

One of the most vexing manifestations of the Rio Grande problem is the dominance of the river's ecosystem by non-native plants. The fertility of the Rio Grande basin, its ability to produce healthy crops and healthy wildlife has been sacrificed to persistent non-native species, like salt cedar.

In speaking with local people in places like Presidio, Texas, Socorro, New Mexico and Alamosa, Colorado, we hear deep concern about the loss of land productivity from the invasion of salt cedar and a desire to reclaim the ecological and economic benefits of a healthy agro-ecological system, supported by a restored and healthy river.

In the Rio Grande, producers and environmentalists have come together to attempt to address the salt cedar problem. Last year, the Alliance and the state Association of Soil and Water Conservation Districts successfully lobbied a $5 million appropriation from the New Mexico Legislature for salt cedar control and reestablishment of native vegetative associations. Bosque del Apache National Wildlife Refuge and Santa Ana Pueblo, to cite just two projects in the Middle Rio Grande, that have become model projects. They are indeed inspiring a growing regional effort to restore the Rio Grande.

We are very pleased that the 108th Congress is addressing this problem, which plagues not only our locality but so much of the West.

In deliberating this issue, we hope the Senate Committee on Energy and Natural Resources will consider a few reflections from our own experiences:

- Impacts to Soutwestern willow flycatcher habitat are a consideration. It is an established fact that, in the absence of other types of habitat, the endangered flycatcher will utilize mature salt cedar for nesting. We have been able to conduct salt cedar projects without disturbing the flycatcher by surveying project sites during nesting season to determine whether nesting flycatchers are present. If the project area contains flycatchers, the project is suspended. Consultations with the U.S. Fish and Wildlife Service in our area have been fairly consistent: if the salt cedar project is designed to result in restoring similar acreages of native habitats, eradication of non-native habitats can go forward.
- Salt Cedar Eradication and Management is worth undertaking, even if it does not salvage one acre-foot of useable water. Although we would desire a measurable increase in the availability of water to address the West's water shortages, neither Congress nor restoration practitioners should succumb to unreasonable expectations about the amount of water to be produced.

The connection between surface water and groundwater is quite complex. In our experience, most of the expected gains from eradicating water-consuming non-native plants have remained in the groundwater system, and are not added directly to the

useable supplies. What we can be sure of is that the water saved will remain on the landscape, elevating water tables and adding modest amounts to the surface water system. We maintain that the benefits of improved wildlife habitat, restoration of native associations and of land productivity are reason enough to undertake salt cedar management projects.

- Land restoration resulting from this measure is not apt to be truly successful without attention to restoring some measure of the underlying hydrologic regime. In many cases, it is the loss of seasonal floods in the streams that has most contributed to the dominance of these non-native trees. Projects that fail to address the need of native species for periodic inundation of floodplains have been least successful in terms of self-maintenance of the desirable species and the regrowth of the target species.
- Monitoring, not just water salvage benefit, is essential in restoring desirable plant associations. We all want to maximize the number of acres restored using the limited funds available. In our experience, there is a tremendous temptation to devote almost no resources to long-term monitoring of the success of these projects, especially the succession of vegetative associations that follow the treatments. We urge this Committee, in its findings to the Congress, to recommend for appropriate monitoring regimes.
- Treatments selected for elimination of invasive species will vary from location to location. We have observed a tendency to over-rely upon aerial herbicide applications because initial per acre costs are lowest. However, these treatment methods are not appropriate in a number of cases where native species, valuable pasture or open water is present on the project site. Project proponents should be advised to carefully assess the conditions of individual sites and avoid reliance on an expedient, "one size fits all" approach.
- Fire prevention objectives in riparian areas may not be served by aerial spraying alone. In the Rio Grande region, dense thickets of invasive trees have increased the frequency of fires, threatening both wildlife and human habitation by providing more fuel than in native, open understory assemblages. Salt Cedar eradication projects which result in removal of the plants can assist in preventing bosque fires. However, in areas where aerial spraying has been conducted, the dead trees may not be removed. In such cases, the fire potential may remain high until the hulks have been removed.

Salt Cedar, Russian Olive and other persistent invaders have indeed become a scourge on the West. We have made most progress in reclaiming afflicted lands where we recognize that underlying ecological factors have contributed to our problem, have corrected these conditions and provided hydrologic and soil conditions which will favor the desirable native vegetation over the invasives.

In most cases, restoration of the land's agro-ecological potential, not water salvage, ought to be the primary objective. If a site cannot support restoration or is likely to require repeated, costly maintenance, it may be a poor candidate for eradication of non-native, invasive plants..

Thank you.

Capitan, NM, September 19, 2003.

ERIK WEBB,
Senate Energy and Natural Resources Committee, Washington, DC.

Subject: Salt Cedar Hearings

DEAR MR. WEBB: I received your posting today and hope that it is not too late. I am a vegetation management specialist, with 23 years experience in fuel reductions, removal of woody species, weed and brush control through integrated management including herbicides and rehabilitation techniques. I have some comments about the bill.

Salt cedar is definitely a very damaging plant and should be managed. However, the scapegoat technique should not apply. People in the southwest are being led to believe that if we eradicate the salt cedar their water problems will go away. This is not the case. Salt cedar is one of many problems our bosques, watertables, riverbanks, landscapes and riparian areas are facing. Water management must be part of this program, or a program that promotes water management should be created or supported.

In my experience of treated sites, I have notices that only the wealthy landowners are receiving benefits of the program. They are the ones who are going to the meetings and signing up. The less wealthy families are still at work. one soil and water conservation district has been completely successful and has provided the state of

NM with the most efficient program yet. This is the Carlsbad SWCD. The manager of this program is a paid employee, well educated in conservation and experienced in vegetation management.

Salt Cedar is not the only plant that is causing problems. Russian olives, Siberian Elm, Pinion, Juniper, and a variety of other plants are creating monocultures in areas that are already damaged due to drought and poor land management. These plants have been allowed to invade due to several human caused factors, and a few environmentally caused factors, but mainly human. Education could follow a removal program. Otherwise, another problem will appear.

As a vegetation management specialist, I have personally removed thousands of acres of plants with the use of bulldozers, fire, chemicals, extraction and chain saws. Once one species is removed, we anticipate that desirable, healthy vegetation will reappear or reestablish. This is not the case. Other plants, possibly those even less desirable than salt cedar, pinion, elm or olive will establish. Often these plants are more difficult to control than the target species. I've seen this occur many times. Measures must be made, prior to salt cedar removal, to inventory existing alternate vegetation so the management of the land can prepare for these species increased establishment.

In other words, at this time, the salt cedar control project has people managing the land that have absolutely no experience in this matter. We have volunteer supervisors with the soil and water conservation district managing land with no knowledge of these species or of land rehabilitation determining the fate of these lands. The management of these species is large and the mistakes will be and are large. Major mistakes are being made, and large amounts of money are being spent. This is not necessary.

In these programs, we have coordinators that do not even understand procurement policy. The contractors are running amuck with their prices ($3200/acre and up). This is outrageous. Management of the program must be professional and designated. We have management from volunteers and that is what is happening with the progress. There is very little.

The public would like to think that salt cedar is the cause of all our problems, however, the fact of the matter is, we are completely over-vegetated with non-natives as well as natives. I wrote a grant for the soil and water conservation district (and was granted $350,000) for watershed rehabilitation. The grant is to remove ALL trees/vegetation necessary to provide management to create less than 5 trees to the acre. The canopy will have a 60% reduction in canopy cover and the vegetation will be mulched to protect what little moisture is in the ground.

Many people think that more research needs to be done. That is incorrect. we have years of research. During the past three contracts I have received for salt cedar removal, my company has been in touch with these researchers, constantly providing information, statistics and pertinent data to continue research. However, we will never obtain the information we are wanting unless we do the work and make changes as we move along. In the meantime, we will be in accomplishing positive results.

Many environmentalists are wanting to stop this program. Some reason are valid, however, due to the drought, not just poor water management, we are faced with a dilemma. Do we stop? Do we research more? Do we discuss? In the mean time, we are on the verge of irreparable damage to waterways, watersheds, rivers and streams. I am a firm believer that the only way to manage growth is to manage the water. If we cannot manage the water, how could we ever hope to manage growth? Our economic basis is founded on management and specific growth. some areas have chosen tourism to provide jobs, schools, community needs and taxes. If there is no water, if the fuel load is so high the area is closed, if the water smells due to contamination and overloading, how can that community grow? some areas have chosen retirement for their slow but secure growth. Again, with unmanaged water, or with water being consumed only by those who can buy it, how will senior people have a chance to compete in a fast paced water market?

These questions I raise are much more than salt cedar eradication, but the point is, salt cedar is one method to control our water, our land, and our land management. However, management is the key. We must provide an integrated management plan. The management team must be more than volunteer conservation district supervisors. The NRCS is much more equipped to handle this, or the state can assign the fund to a task force to manage. This would insure equal and fair application and use of the money.

We also have an issue with one county. Many land owners are removing the salt cedar and assisting the program. Private property can quickly participate in the management of these plants because EA's don't have to be done. There are no evaluations or monitors or assessments on private land. So, much of the taxpayers dol-

lars are being spent on private land. We have one county, who, after many landowners treated their land, has decided to raise the taxes on their land due to what the county assessor is calling a property improvement which has increased the value of the property.

In one instance, many acres were treated at the headwaters of the watershed. The community felt that the increase in water salvage was theirs, and the community quickly approved a new subdivision that would build two new golf courses. However, during the past 20 years, this community had no water management, but rather continued to pump at their leisure. The two rivers through this community began to show the damage, with one river being completely dry. The new "water" was being absconded, while the people downstream still had no benefit nor increased water. The two small irrigation communities saw no increase in water as the amount of salvage was already "used" upstream. Water management, again.

I would like to be more involved with this process. Thank you for your question and inquiry and your time.

SALLY K. CANNING,
DeVeg Management Group.

STATEMENT OF CLAYTON FRIEND, TOM GREEN COUNTY COMMISSIONER, PRECINCT #1 AND DISTRICT MANAGER, TOM GREEN COUNTY WATER CONTROL & IMPROVEMENT DISTRICT #1, VERIBEST, TX

History

The San Angelo Project was constructed with oversight by the Bureau of Reclamation and completed around 1962. The project included the Twin Buttes Reservoir which was to provide municipal, industrial and recreational water for the City of San Angelo, Texas with storage capacity of approximately 180,000 acre feet of water. In addition, the San Angelo Project was to provide irrigation water to the District by using a 65 mile concrete lined irrigation canal system that was constructed with Bureau of Reclamation oversight during the same period. This canal system was to provide access to the water stored in the Twin Buttes Reservoir to irrigate 10,000 acres of farmland. Ten years passed before there was enough water in the Reservoir to release any water into the canal system. In 1972, the first irrigation releases were made to the District through the canal system. Both the City of San Angelo and the District have repayment contracts with the Bureau of Reclamation, Department of the Interior for their portion of the costs of the San Angelo Project.

The District's outstanding loan with the Department of the Interior for the construction of the irrigation canal is Contract No. 14-06-500-369, San Angelo Project. The original amount of the District's loan was $4,000,000. The District has paid $1,506,132, and the remaining balance is $2,487,707.

Problems

The farmers in the District have made diligent efforts to make timely payments on the contract. They have, in fact, paid 38% of the original debt owed to the Department of the Interior. One of the problems is that the farmers haven't received a fair return on their investment. The farmers have received a full year's allocation of irrigation water, 24 inches per acre, only 50% of the time since 1962 when the canal was completed. However, for the other 50% of the time the farmers received either less than the annual 24 inches per acre of irrigation water or no irrigation water at all. Payment on the debt has never been forgiven, even in years when the District received no water. Deferments have been granted seven times due to drought conditions. Those payments, however still have to be made. They are added to the remaining balance and the payments continue to get higher annually because the original contract end date does not change.

The last time the farmers have had any water available from Twin Buttes Reservoir was in 1998 when they received 1½ inches of water per acre. The last time they had the full allocation of 24 inches per acre was in 1997. Farmers cannot exist paying the operation and maintenance costs of the District and the repayment to the Bureau of Reclamation when there is little or no water available.

The following represents the amounts of irrigation water available from Twin Buttes reservoir since completion of the canal system:

1962—0 inches
1963—0 inches
1964—0 inches
1965—0 inches
1966—0 inches
1967—0 inches
1968—0 inches
1969—0 inches
1970—0 inches
1971—0 inches
1972—24 inches
1973—24 inches
1974—24 inches
1975—24 inches
1976—24 inches
1977—24 inches
1978—24 inches
1979—24 inches
1980—24 inches
1981—24 inches
1982—24 inches
1983—4.5 inches
1984—0 inches
1985—0 inches
1986—0 inches
1986—0 inches
1986—0 inches
1987—24 inches
1988—24 inches
1989—24 inches
1990—24 inches
1991—24 inches
1992—24 inches
1993—24 inches
1994—24 inches
1995—10 inches
1996—4 inches
1997—24 inches
1998—1.5 inches
1999—0 inches
2000—0 inches
2001—0 inches
2002—0 inches

As indicated in the chart above, the District has received little or no water in 21 of 40 years.

Current Lake Level and Water Credit Procedures

At the present time, Twin Buttes Reservoir only has 5% of water in storage. This amounts to approximately 9,100 acre feet. There is a water accounting system that credits water to the District and to the City of San Angelo. The District gets credit for all of the water above 50,000 acre feet of stored water. With the current lake level at 9,100 acre feet, the lake would have to have inflow of over 40,000 acre feet before the District gets even one drop of water in storage credits. To irrigate 10,000 acres, it takes about 867 acre feet to equal one inch of water per acre of farmland.

Evaporation also must be considered which sometimes can amount to 15% to 20%, so additional water must be available to allow for evaporation. As has been stated previously in this report, a normal irrigating season with a full allocation of irrigation water (24 inches per acre) there must be approximately 22,000 acre feet available for 10,000 acres of farmland.

Additional Problems

There has been an additional problem facing the farmers in the District. The concrete lining that was placed in the canal system in the early 60's has started to deteriorate after 40 years and now repairs are necessary. The canal lining was designed without any reinforcement steel of any kind and has progressively become worse over time. To repair the canal lining places additional burdens on the farmers because the repairs are very expensive. The farmers in the District have to pay the annual payment for the construction of the canal plus the operation and maintenance costs for the operation of the District. If you have to add the expensive repair costs that need to be done, it makes it virtually impossible for the farmers to make a profit when there is no water available from Twin Buttes Reservoir. The District is, however, trying to repair parts of the canal system that need the most attention. With Bureau of Reclamation approval, the District is using up to $30,000 of its reserve funds to pay for some of the necessary repairs. The amount of reserve funds available is very limited and will only cover a small amount. The following slides show the deteriorating canal lining and small places where repairs have been made at the District's own expense.

Looking for an Alternative Water Supply

Because there was no water available in Twin Buttes Reservoir, the District has contracted with the City of San Angelo for the use of it's reclaimed wastewater from it's wastewater treatment plant. This provides for 8 inches of wastewater per acre of land annually. This water has to be used on a continual basis because the City of San Angelo produces wastewater daily and has limited storage capacities. This reduces the amount of water that can be provided to farm crops during the growing season which is typically during the spring and summer months. There was additional stress placed on the District because a return flow pumping system had to be installed to keep the wastewater from entering into the Concho River. A loan from the Texas Water Development Board in the amount of $150,000 was made available to the District to help finance the cost of the pumping system which cost around $190,000. Annual payments to the TWDB are made by assessing fees to the farmers in the District. These fees are in addition to the fees already mentioned. The amount of water available from the wastewater treatment plant is only 8 inches per acre per year. The farmers have to pay full irrigation prices yet they only receive 8 inches of wastewater per acre per year and nothing from Twin Buttes Reservoir.

Effects of Drought and Depressed Commodity Prices on Farmers in the District

The local Texas Agricultural Extension Agents assisted the District personnel in preparing the following data. The data compares the average income during the years from 1988-1992 when 24 inches of irrigation water per acre was available and the year 2000 when there was no water available for irrigation from Twin Buttes Reservoir.

Crop years 1988-1992	Crops grown	Cash receipts
	Cotton	$1,705,312.50
	Grain Sorghum	232,232.00
	Wheat	61,620.00
	Corn Ensilage	200,000.00
Total all crops		$2,199,164.50
Crop Year 2000		
	Cotton	$1,085,280.00
	Grain Sorghum	94,500.00
	Wheat	115,670.00
	Corn Ensilage	124,800.00
Total all crops		$1,420,250.00
Difference		($778,914.50)
This equals a 33.3% loss in income.		

The results for the year 2000 would be very similar to the years 2001 and 2002 as well as other years that there was no irrigation water available from Twin Buttes Reservoir. The Extension Agent was only asked to provide the most recent year's data available which, at the time, was the year 2000.

Possible Solutions

Included below are several suggestions that would help solve the current problem.

- Extend the repayment period of the loan from 40 to 50 years. This would allow the annual payments to be reduced because they would be extended for an additional 10 years. This same option was granted to the City of San Angelo in 1971.
- Reduce the amount owed to the Bureau of Reclamation on the repayment contract to allow the District to have funds available for the repairs on the canal system. The canal system is going to continue to deteriorate and must be repaired.
- Restructuring the loan would also help. If the end date of the repayment contract could be extended for each year that a deferment was granted this would keep the payments the same each year and not get bigger each time a deferment was granted.
- Have payments to be made only when water in Twin Buttes Reservoir is available for irrigation use. If a full 24 inches per acre is available, then the full payment would be due. If 12 inches, for example, per acre is only available, then 1/2 the payment would be due. This would give some relief to the farmers when the full allocation is not available.

If we continue as we are, the payments will only get bigger and the ability of the farmers to pay the debt will only get more difficult. On August 29, 2000, then Regional Director Maryanne Bach states "Reclamation is aware of the drought conditions in the State of Texas which continue to impact the availability of water within the San Angelo project. Although the deferments received by the District to date have not increased the District's remaining obligation to the United States, the deferments have increased the amount of the annual payments for the remaining repayment period because Reclamation does not have the authority to extend the repayment period without congressional approval. The increased annual payments place additional burden on the District. This financial burden has been exacerbated by current drought conditions and Reclamation believes any additional increase will only lead to future financial difficulty that cannot be offset by Reclamation under its limited authority."

Conclusions

The Tom Green County Water Control & Improvement District #1 does not ask for a handout. Instead, the District is asking for a helping hand. Any consideration in the form of relief will be greatly appreciated. The District has tried to be a good

partner in this effort. The District also has an excellent working relationship with the Bureau of Reclamation and has welcomed any and all support or suggestions made by its personnel.

Honorable members of the Senate Energy and Natural Resources Committee, we have a deteriorating canal system and we still owe over 19 years on the debt. It's like owning an old worn out car but still making payments. Repairs can be devastating.

Thank you,

CLAYTON FRIEND,
District Manager.

○