

STATEMENT OF DR. JAMES TATE
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BEFORE THE SUBCOMMITTEE ON FORESTS AND FOREST HEALTH
OF THE COMMITTEE ON RESOURCES,
U.S. HOUSE OF REPRESENTATIVES
REGARDING
H.R. 2720, THE SALT CEDAR AND RUSSIAN OLIVE CONTROL
DEMONSTRATION ACT

July 14, 2005

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 the opportunity to testify before you regarding H.R. 2720, legislation to promote the control and management of the invasive species saltcedar, or tamarisk, and Russian olive. The Department supports the goals of H.R. 2720, and we are committed to working with you to ensure that the programs it establishes will be both efficiently delivered and effective.

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, which now interbreed in the United States, 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 turbulent 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. Estimates of its coverage range from 500,000 to 1.5 million acres of riparian lands within all the seventeen western states (as far north as Montana). Tamarisk spreads rapidly to new bare areas by flooding. It rapidly produces dense biomass and secretes salt on the soil.

Studies have shown that the densest tamarisk stands can utilize slightly more water on a daily basis than native cottonwood-willow plant communities. 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.

Estimates of the value of water lost – for irrigation and municipal uses, flood control, and hydropower production – run between \$133 million and \$265 million. Irrigation losses alone are as much as \$120 million annually. See, e.g., Zavaleta, "Valuing Ecosystem Services Lost to *Tamarix* Invasion in the United States," in *Invasive Species in a Changing World*, ed. Harold A. Mooney and Richard J. Hobbs (Washington, D.C.: Island Press, 2000), 261-300.

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 (BOR) and the U.S. Geological Survey (USGS), 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 and research efforts for this species.

Team Tamarisk: Cooperating for Results

The 2004 Team Tamarisk: Cooperating for Results conference in Albuquerque, NM, was sponsored by the Department and the Department of Agriculture (USDA), the National Invasive Species Council (NISC), and 11 other organizations to discuss the challenges of controlling and managing the invasive weed tamarisk and developing sustainable habitats in its place. Team Tamarisk continues to make progress by implementing the guiding principles agreed to by the 300 representatives from federal, state, local, tribal organizations and the private sector.

NISC established a team of economists, ecologists, biologists, and engineers from the public and private sectors to conduct an economic analysis of alternative management strategies for tamarisk in the Rio Grande-Pecos and Colorado River Basins. This work will help policy makers guide region-wide tamarisk control efforts that "optimize resources and maximize local effectiveness" as called for in the Team Tamarisk Guiding Principles. Team members include representatives from the USGS, Tamarisk Coalition, University of California–Santa Cruz, U. S. Army Corps of Engineers, U.S. Forest Service, BOR, the U.S. Fish and Wildlife Service (FWS), Environmental Protection Agency, and NISC staff. Experts from several land and resource management agencies and economists have provided detailed data on tamarisk cover in the Rio Grande and Colorado River Basins, for economic and geographic assessments.

With support from the Department and other stakeholders, officials in Colorado are implementing a 10-year Strategic Plan for tamarisk control with several major watersheds developing cooperative approaches for control and inventory mapping on the Arkansas and Colorado River drainages. New Mexico officials completed their Strategic Plan for Non-native Phreatophyte/Watershed management and adopted the Guiding Principles of Team Tamarisk. Kansas officials are embarking on a 10-year strategic plan for tamarisk control and revegetation. Texas officials are also engaged in tamarisk activities, as is the Nature Conservancy, especially along the Colorado River.

Arizona officials have been involved in an interagency effort to put together a plan for woody invasive plant management patterned after a similar plan in New Mexico. Several people are currently working on a pilot study to remove tamarisk from a desert stream north of Phoenix, before it increases its canopy coverage and range.

Scientists at the USGS's Fort Collins Science Center, the National Aeronautics and Space Administration's (NASA) Goddard Space Flight Center and Colorado State University have modeled habitat suitability of tamarisk in the western United States based on the ground sample data and habitat analysis from MODIS satellite data products. The output from the modeling will assist state and federal managers to estimate the current and potential range of tamarisk and guide early detection and rapid response efforts and long-term control strategies.

The USGS's National Institute of Invasive Species Science has taken a leadership role in collecting Tamarisk data from over 50 groups, including just under 35,000 locations, to create a living map of tamarisk distribution. Locations of thousands of tamarisk populations across the United States are being continuously plotted into a central web-based mapping database, with major contributions from agencies, tribes, local and state governments and non-government organizations. The data are available to all online at <http://www.NIISS.org>, a cooperative effort of Team Tamarisk and USGS. These data are part of the tamarisk mapping website (www.tamariskmap.org) called T-map that allows anyone to view the combined datasets in an on-line mapping application.

Current Departmental Tamarisk Management Efforts

Current Departmental programs and activities focus control and management efforts for tamarisk on areas with resources at risk within the regional framework established by Team Tamarisk. 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.

Some areas are so heavily infested that expert “strike” teams have been used to remove the dense vegetation. The National Park Service (NPS) has three mobile exotic plant management strike teams, hosted at Lake Mead National Recreation Area, Carlsbad Caverns National Park (NP) and Petrified Forest NP, and working in southwestern parks to control tamarisk and other species. Initial control of tamarisk has occurred in numerous parks such as: Zion NP, Joshua Tree NP, Mojave NP, Hubbell Trading Post National Historical Site, Mesa Verde NP, and Colorado National Monument. Additionally, teams are working in concert with partners such as the FWS, the Bureau of Land Management (BLM), state and local governments, as well as volunteers, on a variety of tamarisk management projects

The FWS has established new “strike teams,” modeled after the three NPS Exotic Plant Management Teams, to combat tamarisk and Russian olive in the Southwest.

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 BOR. 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.

Recent joint research efforts under Team Tamarisk have focused on stream flows and opportunities for studying revegetation after tamarisk removal. Resource managers from the Army Corps of Engineers, the FWS, BOR, BLM, Arizona State, and USGS scientists recently implemented a managed streamflow release on the Bill Williams River in Arizona which was designed to favor native riparian plant regeneration, while inhibiting tamarisk regeneration. In addition, researchers from the USGS, the University of Denver, and BOR have initiated greenhouse experiments to test the salinity and drought tolerance of various plants native to the Rio Grande in order to determine their suitability for revegetation efforts that follow tamarisk control. Experiments are also being conducted to determine the effect of mycorrhizal fungi on the growth of these native plants.

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 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 2005 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. Some of these projects, such as the Moab Partners for Restoration, target community and youth projects for tamarisk and Russian olive control.

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 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.

The NPS, USGS, and BOR 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, on projects to identify and avoid sites where tamarisk is naturally dying out, to conduct studies of stream flow management for vegetation control, and on studies of hybridization to better predict the potential future spread of tamarisk. After extensive research testing in cages and in the field, the first general releases will soon be approved.

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, NASA, and the Tamarisk Coalition aimed at mapping currently invaded sites and identifying new invasions.

The BOR leads, along with USDA's Agricultural Research Service, the Saltcedar Biological Control Consortium, a task force comprised of over 40 agencies. BOR, 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 2006

The Administration is also working toward an interagency approach to invasive species control and has presented a unified invasive species performance-based crosscut budget through the National Invasive Species Council. Through this interagency effort, agencies will work together to develop common performance measures. Under this performance umbrella, new and base funds will be applied in the Departments of Agriculture and the Army Corps of Engineers to control and manage the spread of tamarisk in the Southwest.

In 2006, the Department will coordinate invasive species activities based on geo-regional areas in response to bureau concerns that the species-specific focus areas do not always accurately portray the invasives work done on any given piece of land. For example, when BLM is controlling and managing weeds on public lands in the West, BLM will identify the target species, such as tamarisk or leafy spurge, while also taking into consideration the other associated weed species in the area. The goal is to treat the target species, as well as the other invasive and noxious weeds in the same area.

Within the Department, BLM proposes to control 4,915 acres of tamarisk with a \$500,000 funding increase. In addition, 1,000 acres will be inventoried for weeds, research will be conducted on revegetation, and one decision support system will be developed. A \$500,000 increase for BLM is proposed to support these efforts. With a \$200,000 proposed budget increase, USGS will conduct research on revegetation and will provide technical and scientific support in the development of the BLM decision support system.

The FWS has proposed an increase of \$1 million for tamarisk eradication in the endangered species recovery program. This exotic plant is considered a threat to some endangered and threatened species, such as the southwestern willow flycatcher. Tamarisk removal is identified as a key recovery action that is needed for many listed species that occur in wetland areas throughout the arid southwest. For example, the recovery plan for the Pecos sunflower requires the management and control of tamarisk.

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.

Departmental Views on H.R. 2720

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 turn to H.R. 2720.

The "Salt Cedar and Russian Olive Control Demonstration Act" establishes a two-pronged approach to control of these species. Section 2(c) of the legislation would require the Secretary of the Interior, working under a Memorandum of Understanding with the Secretary of Agriculture, to complete an assessment of the extent of infestation by these species in

the western United States. The assessment is also to consider existing research on methods 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 maintenance. The Secretary is also required to submit a report on the assessment to the committees of jurisdiction. Finally, the Secretary is to identify long-term funding strategies that could be implemented by federal, state, and private land managers.

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. While we agree with the goals of the bill, we have concerns with some provisions.

Subsection 2(e) of the bill would require that the Secretary initiate demonstration projects to determine the most effective control methods, and provides certain criteria that must be included in the project designs. We recognize the importance of carrying out strictly controlled projects that will quickly provide us with practical control and revegetation methods that can be used by our land managers on the ground. As noted above, the Department has previously been working with our partners to develop and implement an integrated approach to management of tamarisk and Russian olive.

In addition, the legislation would authorize \$20 million for fiscal year 2006, and \$15 million for each fiscal year thereafter through 2010. While the Administration's crosscut budget demonstrates our commitment to control invasive species such as tamarisk and Russian olive, the program established under this legislation would have to compete with other priority activities within the context of the President's Budget. We have concerns about the mandatory nature of the authorizing language, and recommend language that is more permissive in nature. Finally, the Department notes that the actions called for in H.R. 2720 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 intention of H.R. 2720 to more systematically develop a more effective regional control strategy for tamarisk and Russian olive. 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.