



NATURAL RESOURCE NEEDS IN WESTERN NEVADA

BY THE
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Natural Resource Needs in Western Nevada

University of Nevada Cooperative Extension
Western Area

The Natural Resources and Environmental Conservation (NREC) team consists of community-based Extension faculty working in Natural Resources, Hydrology and Horticulture in the Western Area of Nevada, which includes Carson City, Douglas, Storey, and Washoe Counties. Our mission is to provide life-long learning opportunities for communities and individuals to help them make informed decisions and take actions that promote economically, socially, and ecologically sustainable uses of our natural resources. This document is a report of the results of our most recent needs assessment, including a summary of our programs in natural resources and environmental conservation.



Why Assess Needs?

Needs assessments are an important tool that allow us to assess community needs and design programs to address those needs. By conducting needs assessments that involve local residents, we are able to more accurately pinpoint and prioritize issues that are of concern in their daily lives.

As a team, we regularly assess the need for community education programs in our field to ensure programs address the priority issues. Individual faculty members assess community needs on a day-to-day basis as we monitor current events, meet with colleagues from other agencies, and interact with our program audiences. Every five years, we conduct a more formal needs assessment, which involves methods such as formal surveys of the public, key informant interviews, and a review of what we have learned since the last major assessment. Such an assessment was conducted in 1998.

As a group, we shared information about issues arising from programs, surveys, and existing needs assessments from many organizations. In addition, in 1997, a natural resources issues identification document was mailed throughout the Western Area to examine key issues identified in prior needs assessments, and help to prioritize these and new issues. Team members were assigned specific issue areas and were asked to investigate and compile information and write defining statements on the key issues that had been identified. Internal and external revision and review were used to validate and ensure a top-quality document.

While many issues have been identified, the following is a brief summary of the nine most pressing natural resource-related issues that we have identified for Cooperative Extension programming in western Nevada. These issues were prioritized based on the frequency of response from our respondents as well as the expertise available within the NREC team. They are not presented in ranked order. Following the issues identification segment is a listing of current Cooperative Extension programs and the issues they address.

Critical Natural Resource and Environmental Conservation Issues

Water Quantity

Nevada is the driest state in the nation. Due to rapid population expansion, the Nevada Division of Water Planning estimates that urban water use will increase by as much as 45% by the year 2020. Moreover, as our population grows, the impact of future droughts will become more severe. Some agricultural water rights are available for purchase and transfer to meet the needs of the growing urban population. Negotiated agreements can also help to improve management and use of surface and groundwater. Water conservation practices are needed to increase water use efficiency and to decrease the need for costly expansion of infrastructure. Cooperative Extension increases residents' understanding of regional water supply issues and encourages adoption of practices to reduce water waste. Using research-based information on indoor and outdoor water conservation, Cooperative Extension also assists local leaders with water management strategies that will improve conservation and address the needs for water-based recreation including fish and wildlife habitat.

Water Quality

Nevada's limited water supplies must be of sufficient quality to support a variety of uses, including domestic drinking water; agricultural, industrial, and mineral extraction processes; recreational purposes; and aquatic ecosystem and wildlife needs. Studies have found that every major lake and river in Nevada shows some level of water quality impairment, including elevated levels of total phosphorus, total nitrogen, total dissolved solids, bacteria, and reduced levels of dissolved oxygen. Groundwater supplies are contaminated with industrial contaminants or nitrates and bacteria from septic systems and livestock waste. As most of the existing easily



definable point sources of pollution have been identified and regulated, current attention is focused on managing the impacts to surface and ground water from nonpoint, or diffuse sources that are difficult to identify. Cooperative Extension continues to provide education and information to industries, landowners, and the general public to improve water quality through the adoption of best management practices to reduce nonpoint source pollution.

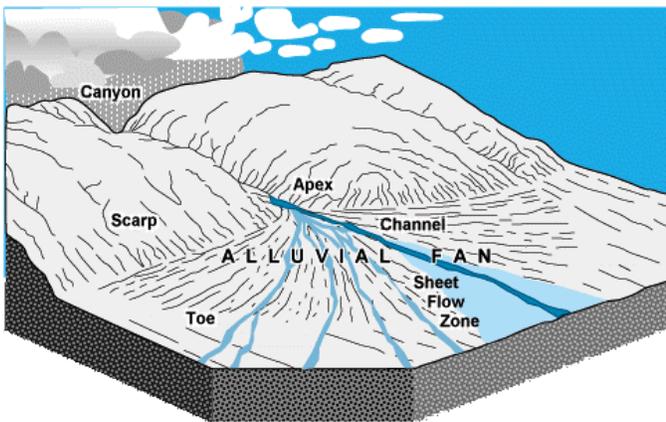
Watershed Management

Integrated watershed management involves water quality, water quantity, and flood management, addressing issues such as wildlife habitat, livestock grazing, pollution prevention, land development, vegetation management, and water supply. Integrated management encourages diverse agencies, landowners, resource managers, and non-governmental organizations to coordinate and cooperate in their efforts to manage these complex issues. This approach saves money and produces better long-term planning decisions. In western Nevada, there has been a rapid increase in awareness and understanding of water-related issues that has resulted in increasing numbers of people advocating improved watershed management on the Truckee and Carson Rivers and at Lake Tahoe. Cooperative Extension's role is to improve the skills and abilities of all stakeholders to help them clarify their goals, reach sustainable

agreements, and work together to improve watershed management over time.

Floods

Of all natural disasters, floods are the number one cause of loss of life and property in Nevada. In western Nevada, many residents are unaware of or unconcerned about the hazards posed by the region's two different types of floods: summer flash floods related to thunderstorms, and winter rain-on-snow floods on the valley floors. Though many residents remember the January 1, 1997 flood of the Truckee, Carson and Walker Rivers, there is little understanding of the magnitude of the hazards that



result from flash floods. In Nevada, 75% of all buildable land is on alluvial fans, plains consisting of loose materials deposited by water over many years. These areas are especially vulnerable to floods. Because Nevada is the most rapidly growing state in the nation, assessment of flash flood risks is an important issue. Cooperative Extension's role in flood education is to work with other agencies and groups to inform affected individuals and organizations about flood hazards and planning. Extension also facilitates the development of citizens' groups in addressing flood safety needs in their communities.

Forest Health



Coniferous forests in western Nevada have been significantly altered since the arrival of European settlers. Past management practices have resulted in forests that are less tolerant to environmental stresses such as drought, wildfires and insect infestations. These stresses have led to widespread tree mortality, increasing the risk of catastrophic wildfires, and threatening public safety and natural resources. Decreased forest health has also led to increased erosion, which has significant effects on water quality. Forest health education by Cooperative Extension addresses wildfire risks, protection of water quality and restoration of the forest to a state where natural and human-induced influences do not threaten desired conditions in

the forest. Through education, group facilitation, and conflict resolution, Cooperative Extension improves the effectiveness of diverse groups and stimulates public education about forest issues and the necessity for citizen input in addressing those issues.

Wildfire

Much of western Nevada is considered an extreme wildfire hazard environment, possessing all the ingredients necessary to support large, intense, and uncontrollable wildfires. Wildfires have taken lives, destroyed property, cost millions to suppress and rehabilitate, caused long-term changes in vegetation, damaged watersheds, and impaired key wildlife habitats. Ironically, the control of fire by man has also contributed to the issue. Past land use practices and active fire suppression during recent decades have eliminated the natural cycle of more frequent, less intense fires. As a result, forest and rangeland health have declined, wildfire fuels have accumulated, and the risks of catastrophic fire have increased. Cooperative Extension, working collaboratively with fire protection and land management agencies, increases beneficial pre-fire preparedness by educating target audiences on methods to reduce the economic, ecologic, and social effects of wildfire.



Noxious Weeds on Public and Private Lands

Noxious weeds are a major threat to plant and animal diversity and water quality protection. Noxious weeds are becoming serious problems on forest, range, and agricultural lands, and wetlands throughout western Nevada. The lower Truckee and Carson Rivers are infested with several species of



noxious weeds that affect streambank stability, water quality, and water table depth. Hay producers in some areas suffer economic losses from contamination of hay by noxious weeds. Noxious weeds also diminish wildlife habitat and recreational opportunities. Effective control measures require that public and private land managers, the State Division of Agriculture, the Agricultural Research Service, and all others affected work together. Cooperative Extension's role is to reduce noxious weed infestations and improve coordinated control measures by conducting educational programs incorporating current research information.

Urban Horticulture

On average, homeowners use more fertilizers and pesticides per acre than do agricultural producers. This provides a potentially large source of nonpoint, or diffuse source pollution to surface and groundwater. Urban landscape management addresses soil, air, water, and vegetative resources to ensure a strong economic base and a high quality of life. Cooperative Extension guides residents in proper plant choices for water efficiency and sustainable landscape design, teaches least toxic methods of pest control, and offers methods to increase wildfire and flood survival.

Public Policy

Western Nevada's increasing and diverse population places complex demands on the region's natural resources. Decisions concerning natural resource allocation, management and monitoring are often met with controversy and public divisiveness. Recent examples include conflicts about multiple use of public lands, air quality, water quality and quantity, and population growth. Resolution of these difficult issues requires the participation of diverse interests in the entire process from identification and analysis to the decision-making phases of public policy. Cooperative Extension addresses this issue by serving as a catalyst that provides training and support to improve collaborative decision-making processes.

Looking to the Future

This document is part of the continuous cyclic process of needs assessment, program planning, and evaluation that is used to guide our educational efforts. Western Nevada's population continues to grow in numbers and diversity, resulting in expanded suburban areas and a corresponding loss of wildlands and agricultural lands, as well as increased pressures upon resources. While the priority issues identified in this document will continue to be important and will likely increase in complexity and contentiousness, as western Nevada's use of natural resources grows, new issues will continue to surface. The needs assessment process will allow us to stay abreast of emerging issues and respond to them in a timely fashion.

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University of Nevada Western Area Cooperative Extension Programming in Natural Resources and Environmental Conservation

Issue #1: Water Quantity

Issue #4: Floods

Issue #7: Noxious Weeds

Issue #2: Water Quality

Issue #5: Forest Health

Issue #8: Urban Horticulture

Issue #3: Watershed Management

Issue #6: Wildfire

Issue #9: Public Policy

Name of Program	Brief Description	Issues Addressed (see above)								
		1	2	3	4	5	6	7	8	9
Water Conservation Program	Cooperative Extension has developed a landscape conservation program and is working with the Washoe County Regional Water Planning Commission to implement it. (Carlos*)	X							X	X
Small Ranch Water Quality Program	This educational program helps owners of small acreage properties learn how to manage their farms and ranches to protect groundwater and surface water and manage their land resources wisely. (Donaldson)	X	X	X				X	X	
Tahoe Integrated Landscape Project	Cooperative Extension is working with the Tahoe Regional Planning Agency and the Natural Resources Conservation Service on a landscaping program that will teach residents how to decrease nonpoint source pollution from their properties to Lake Tahoe. (Cobourn and others)	X	X	X		X	X		X	
Stormwater Education Program	This volunteer-based project uses stenciling as a tool to inform the public that storm drains empty into lakes and rivers and cause pollution. (Cobourn)		X						X	
Truckee River Watershed Management Ed. Program	Cooperative Extension's role in this regional inter-agency effort is to act as a facilitator, educator, and catalyst to promote collaborative efforts throughout the Truckee River watershed. (Cobourn)		X	X	X				X	
Carson River Watershed Education Program	A coalition of elected officials, scientists, ranchers, and resource managers is working to establish integrated management of water supply, water quality, flood management, and ecosystem health throughout the Carson watershed. (Cobourn and Lewis)	X	X	X	X	X	X	X	X	X
Western Nevada Flood Education Program	Cooperative Extension is working with the Washoe County Division of Emergency Management to implement a flood awareness and planning program for Washoe County. (Cobourn)			X	X					X

**Names listed under "Brief Description" may be contacted for more information. See previous page for locations and phone numbers of program contacts.*

Issue #1: Water Quantity		Issue #4: Floods		Issue #7: Noxious Weeds						
Issue #2: Water Quality		Issue #5: Forest Health		Issue #8: Urban Horticulture						
Issue #3: Watershed Management		Issue #6: Wildfire		Issue #9: Public Policy						
		1	2	3	4	5	6	7	8	9
Community Based Bark Beetle Education	This educational program teaches residents of Incline Village and Kingsbury Grade about the biology and management of bark beetles and how to keep their valuable trees healthy. (Donaldson)					X			X	
Forest Health Consensus Group	This group of land managing agencies and private citizens is working to create healthier forests and safer wildfire conditions through consensus decision making. (Lewis and Cobourn)		X			X	X		X	
Prescribed Fire Project	This project evaluates the effects of prescribed fire in reducing wildfire hazard to homes and improving forest health in Incline Village by educating property owners. (Smith)					X	X		X	
Sierra Front Wildfire Threat Reduction Project	This collaborative effort, headed by Cooperative Extension, involves 12 different agencies with the purpose of reducing the wildfire threat to people and property along the eastern Sierra Front. (Smith)						X		X	
Only Ewes Can Prevent Wildfire Project	This project seeks to determine the feasibility of using sheep to create fire fuel breaks around Carson City subdivisions. (Smith)						X			
Wildfire Rehabilitation Evaluation Project	This project is evaluating the effectiveness of various fire rehabilitation efforts eight or more years after a fire, to produce information regarding effective and efficient rehabilitation methods. (Smith)			X			X			
Noxious Weed Identification and Control	This program helps local residents and agriculturists learn how to identify and control noxious weeds on their properties. (Donaldson)							X	X	
Master Gardener Volunteers	Master Gardeners are trained volunteers that answer gardening questions, maintain seven demonstration gardens, help with Christmas tree recycling, write newspaper articles, run Harvest for the Hungry, and volunteer time to city parks and schools. (Skelly and Carlos)	X	X						X	
Nevada Gardening Series	The Nevada Gardening series consists of 14 free classes on gardening in Nevada taught by Master Gardeners and staff. (Skelly)								X	
Urban Forestry Program	The Urban Forestry Program is a series of workshops on tree planting, pruning and management and a demonstration garden at North Lake Tahoe. (Post)					X			X	

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		1	2	3	4	5	6	7	8	9
Project Great Basin	Project Great Basin incorporates the Great Basin into the curriculum of grades K - 6 using the history, plants, animals, Native American culture, geography and industries such as agriculture, mining and entertainment. (Post)								X	
Integrated Pest Management (IPM)	This program promotes plant health through pertinent articles in local newspapers and broadcasts on local radio and television stations to inform the audience. (Post, Skelly, Carlos)		X					X	X	
Professional Horticulture Programs	These programs provide horticultural training to professional gardeners, nursery workers and landscapers to improve their knowledge and allow them to obtain a certificate of completion. (Carlos)								X	
Media Dissemination of Horticulture Information	Timely seasonal horticulture information focusing on wise water use and environmentally safe practices is disseminated by radio and newspaper. (Post and Skelly)								X	
Landscape Management Program in Spanish	This class for Spanish-speaking landscape workers provides training in irrigation design and installation, pesticides safety and various horticulture topics. (Carlos)	X	X						X	
Morning With Friends	This is a monthly workshop providing timely research-based information to the landscape industry. (Carlos)	X	X						X	
Environmental Education for Western Nevada	The focus of this program is hands-on in-school learning related to environmental issues, including forest health, floods, water quality protection, and science fairs. (Donaldson)	X	X	X	X			X	X	X
Nevada's Pre-Settlement Conditions	Nevada's pre-European settlement vegetation and wildlife characteristics are compared and contrasted with today's land uses to help readers develop an informed opinion about historic and current changes. (Smith)					X				X
Sustainable Communities Campaign	This program is focused on participating in Washoe County's Sustainable Community Task Force (a.k.a. Waste Busters) and developing a discussion series and educational component for community leaders about growth. (Rebori)			X					X	X
Reaching Sustainable Agreements	This program provides trained facilitators to help resolve community disputes and land use issues. (Rebori)	X	X	X	X	X	X	X		X