

Las Vegas Wash Coordination Committee

Integrated Weed Management Plan for the Lower Las Vegas Wash

Las Vegas Wash Coordination Committee
& Las Vegas Wash Weed Partnership

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Las Vegas Wash Weed Partnership

Prepared for:

Las Vegas Wash Coordination Committee, NV

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To promote awareness among the landowners and land managers within the hydrographic basin, facilitate cooperation and collaboration, create a weed control plan, and implement on-the-ground weed management activities in the lower Las Vegas Wash.

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LAS VEGAS WASH WEED PARTNERSHIP MEMBERS

City of Henderson
City of Las Vegas
City of North Las Vegas
Clark County Parks and Community Services
Clark County Public Works – Vector Control
Lake Las Vegas Resort
Nevada Department of Agriculture
Southern Nevada Water Authority
United States Bureau of Reclamation
United States Fish and Wildlife Service
United States National Park Service
United States Department of Agricultural Natural Resources Conservation Service
University of Nevada Cooperative Extension

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LIST OF ABBREVIATIONS

Best Management Practices	(BMPs)
Clark County Multiple Species Habitat Conservation Plan	(CC MSHCP)
Clark County Parks and Community Services	(CCPCS)
Clark County Public Works – Vector Control	(Vector Control)
Clark County Wetlands Park	(Wetlands Park)
Global Positioning System	(GPS)
Integrated Weed Management	(IWM)
Las Vegas Wash Capital Improvements Program	(LVWCIP)
Las Vegas Wash Comprehensive Adaptive Management Plan	(CAMP)
Las Vegas Wash Coordination Committee	(LVWCC)
Las Vegas Wash Project Coordination Team	(LVWPCT)
Las Vegas Wash Weed Partnership	(Partnership)
Las Vegas Wash	(Wash)
National Division of Forestry	(NDF)
National Fish and Wildlife Foundation	(NFWF)
National Park Service’s Exotic Plant Management Team	(NPS EPMT)
National Park Service	(NPS)
Nevada Department of Agriculture	(NDOA)
Nevada Revised Statutes	(NRS)
Nevada State Noxious Weed List	(Nevada Weed List)
Nevada Weed Action Committee	(NWAC)
Southern Nevada Water Authority	(SNWA)
U.S. Army Corps of Engineers	(COE)
Water Quality Citizens Advisory Committee	(WQCAC)

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EXECUTIVE SUMMARY

Introduction

The Las Vegas Wash (Wash) is the primary drainage for the metropolitan Las Vegas Valley, eventually finding its way into the Colorado River watershed system. Pursuant to the recommendations of the Water Quality Citizens Advisory Committee, the Las Vegas Wash Coordination Committee (LVWCC) was formed in 1998 to develop a comprehensive plan for the long-term stabilization and management of the Wash. Consisting of representatives from 28 government agencies, businesses, environmental groups and citizens, the LVWCC formulated the Las Vegas Wash Comprehensive Adaptive Management Plan (CAMP) and designated the Southern Nevada Water Authority (SNWA) as the lead agency for the implementation of the CAMP. Implementation of the plan's 44 recommendations began in 2000.

Invasive plant management has become an integral component of the overall stabilization and enhancement of the Wash. Pursuant to the U.S. Army Corps of Engineers (COE) Section 404 permit, the SNWA is required to mitigate on an acre-per-acre basis of land disturbed during the implementation of the Las Vegas Wash Capital Improvements Program (LVWCIP). Compliance with the Section 404 permit requires that the SNWA maintain an 80 percent survival rate of native species and less than 20 percent cover of invasive plant species. To better facilitate compliance and maximize the effectiveness of the revegetation program in the Wash, the SNWA prompted the formation of the Las Vegas Wash Weed Partnership (Partnership) in 2002, with the assistance of grant funds from the National Fish and Wildlife Foundation (NFWF). The mission of the Partnership is "to promote awareness among the landowners and land managers within the hydrographic basin, facilitate cooperation and collaboration, create a weed control plan, and implement on-the-ground weed management activities in the lower Las Vegas Wash."

Description of Area

The boundary of influence established by the Partnership is the lower Las Vegas Wash, defined as the nine-mile stretch of the Wash from Vegas Valley Drive to Lake Las Vegas, Figure 2. Vegetative analysis has identified 104 plant species comprising nine plant communities. Approximately 40 of these plant species are non-native species. Extensive soil surveys and water quality programs have been conducted to characterize Wash flows. The soils and flows in the Wash tend to be high in electrical conductivity (an indicator of salinity), and therefore require the selection of salt tolerant plants for the revegetation program. Treatment to remove perchlorate (ClO_4) is also underway. Ongoing bird, reptile, small mammal and fish surveys have identified more than 300 species of wildlife in the Wash.

There is also an aggressive effort underway to stabilize and control erosion in the Wash. Based on the presence of highly erodible soils and tremendous flow increases through the Wash over the past 25 years, substantial erosion has occurred. The implementation of bank stabilization and weir construction in the Wash provides the opportunity to replace numerous acres of tamarisk

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(*Tamarix ramosissima*) and other low quality vegetation with more diverse native vegetation. To date, seven grade control structures have been constructed, with 15 more planned.

Significance of Invasive Plants

Invasive weeds have become a serious problem for land managers throughout the West. The State of Nevada Revised Statute (NRS) 555.0 requires that certain species of invasive weeds must be controlled by law. Responsibility for regulation lies with the Nevada Department of Agriculture (NDOA). A noxious weed list places particular species under regulation jurisdiction, and require landowners (public and private) to manage these plant species. A plant is considered a weed if it is located where it is not wanted and NDOA defines a noxious weed (a legally recognized invasive weed) as “any species of plant which is, or is likely to be, detrimental or destructive and difficult to control or eradicate.” Invasive weeds tend to out-compete other native species, and can be destructive to crops, livestock, habitat, and can affect human health and public safety.

Weed Management Priorities

The Partnership’s first step was to identify weed management priorities for the Wash. First, the Partnership identified three priority weeds of concern: 1) tall whitetop (*Lepidium latifolium*), 2) giant reed (*Arundo donax*), and 3) tamarisk. There are a number of factors to be considered when prioritizing weeds, including the actual or potential threat, location of infestation, size of infestation, treatment methods, and available resources.

Tall whitetop was identified as the top priority weed because of the tremendous threat it poses downstream in Lake Mead and the Lower Colorado River Basin. Tall whitetop is a particularly aggressive weed that increases erosion of soils, spreads quickly, and is difficult to control. Because the size of the existing infestation in the Wash is still manageable, priority was placed on addressing this weed first.

Giant reed was identified as the second priority species because the infestation is small enough that it can be easily addressed in conjunction with treatment of tall whitetop before it becomes a significant problem.

Finally, tamarisk, was selected as the third priority species. With approximately 1,500 acres of tamarisk, it is by far the most prevalent plant species in the Wash. Given the extent of the infestation, the fact that tamarisk provides habitat to a number of important birds, and the large amount of necessary resources to eradicate it, tamarisk will be addressed on a site by site basis, primarily as grade control structures and bank stabilization projects are implemented.

In addition to these priority weeds, the Partnership identified a number of “Watch Weeds.” These are species that must be given consideration, and will be monitored and addressed as the needed. Watch weeds in the Wash include: Russian knapweed, Johnson grass, fountain grass, camelthorn, fivehook bassia, kochia, fan palm, silverleaf nightshade, and tree tobacco.

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Weed Mapping

The Nevada Weed Action Committee (NWAC) has developed a Global Positioning System (GPS) protocol for mapping noxious weeds in Nevada. Weed mapping is an invaluable tool for assessing the extent of an infestation and planning effective weed management programs. Using a combination of aerial photography and GPS based ground surveys; tall whitetop, giant reed and tamarisk infestations in the boundary of influence have been mapped. The data has been submitted to NWAC for inclusion in its noxious weed database and GIS maps have been created to assist with treatment and management objectives.

Weed Management Techniques

A range of strategies associated with the management of weeds, from complete eradication to thinning existing stands or simply eliminating seed production to prevent further infestation, will be employed. Control actions include revegetation using native species, flood irrigation of weeds, fertilization to increase the population of more desirable species, and shading to starve the weed of needed sunlight. Mechanical methods can also be employed including hand pulling of weeds, mowing or cutting, tilling and burning. Biological controls, such as livestock, insects, fungi or other pathogens or predators can be employed to address weeds as well. In some cases, the most effective method for treating weeds requires the use of herbicides.

Integrated Weed Management

Integrated Weed Management (IWM) is defined as “a strategy of selecting and implementing a combination of weed control techniques or methods that collectively increase efficiency and effectiveness of treatment for a particular weed species or infestation”(Gershman & Lane, 2000). The goal of treatment for tall whitetop in the Wash is suppression, primarily using herbicide treatments in conjunction with hand pulling of select plants. This program is expected to take three to five years. Similarly, management of giant reed is accomplished using primarily herbicide treatment to eradicate the species. Eradication in this case is possible because the existing stands are isolated, small, and easily treated using herbicide. The goal for tamarisk is containment of existing stands, and suppression where possible. Treatment methods are primarily mechanical, including cut stump, root raking and hand pulling. In all cases, revegetation using native species is essential to effective long-term weed management. Without aggressive revegetation, treated weeds simply re-establish themselves, often in a short period of time.

Monitoring and Evaluation

Weed management is an ongoing, long-term endeavor, and constant monitoring and evaluation is required to ensure success. As a result, an effective monitoring strategy, which is simple and straightforward, will be used to periodically evaluate the effectiveness of particular treatment methods and success rates. The monitoring program will be used to adjust management strategies to maximize program effectiveness. The goal of the monitoring strategy is to encourage adaptive management, allowing the weed management program to be modified and

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improved based on the ongoing collected data. Weed management and evaluation is an ongoing and imperative process that will be maintained to ensure effectiveness.

Community Involvement and Public Awareness

An important, yet often neglected component of any weed management program is community involvement and public outreach. Outreach with respect to weeds is doubly important given the public's overall lack of awareness about invasive plants in Nevada. To address this problem, the NWAC has initiated a statewide weed education program to coordinate and facilitate public outreach throughout the state. The Partnership has developed a number of key outreach materials. These include development of several web pages devoted to weeds at www.lvwash.org, profiles in agency publications, and television programs, as well as volunteer weed pulling events. In addition, the Partnership is working to develop a public outreach strategy to ensure that outreach activities undertaken by the Partnership are complimentary to, but not redundant with other state and local education programs.

Interagency Coordination

Established to collectively address the growing weed problem in the Wash, the Partnership has been successful because of the collaborations it has established. Contributions from member entities have ranged from technical advice and review, to the contribution of in-kind resources and funding of project components. As the Partnership moves forward, these collaborations will become increasingly important to maintain the established momentum.