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Managing Noxious Weeds through Assessment, Education, and Partnerships

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Introduction

Noxious weeds are a significant threat to rangeland, cropland, and riparian areas in the western United States. In riparian areas especially, noxious weeds present serious problems. They can replace desirable native vegetation shutting out wildlife, eliminating shade to keep water temperatures cool, and reducing fish populations. Noxious weeds can also make stream banks less stable and lead to increased erosion and reduced water quality.

Perennial pepperweed (*Lepidium latifolium*) or tall whitetop, in particular, is spreading rapidly along rivers and wetlands in northwestern Nevada. It has become prolific particularly in the Truckee-Carson watershed. Stakeholders in Nevada have an opportunity to learn from this example the importance of early detection and abatement of this noxious weed.

Getting a Head Start on Noxious Weed Management in the Walker River Basin

From its headwaters in the Sierra Nevada, the Walker River flows almost 160 miles to its terminus in Walker Lake. The river flows through Mono County, California, Douglas, Lyon and Mineral Counties, Nevada and the Walker River Paiute Indian Reservation before reaching Walker Lake.

Residents and visitors rely on the river to sustain recreation, agriculture, and riparian habitat. Lack of understanding of the extent of spread of noxious weeds and lack of proactive management could have devastating effects basin-wide on agriculture,

recreation, wildlife, and ultimately the region's economy. In particular, the infestation of tall whitetop in riparian areas along the Walker River may be at a point where swift, strategic action could lessen the chances for dense infestation throughout the basin.

A 3-Step Program

In 1999, Nevada Cooperative Extension in Lyon County developed and initiated a 3-step program in the Walker River Basin in an effort to assist stakeholders in managing noxious weeds. Although this program could be used to manage several noxious weed species at once, tall whitetop was selected to pilot the program. The steps are:

- 1. Assess the level of weed infestation,**
 - 2. Educate those stakeholders involved, and**
 - 3. Partner with stakeholders including conservation districts, weed districts, Native American tribes, and natural resource management agencies to build a coordinated strategic weed management plan.**
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Step # 1: Assess Tall Whitetop Infestation

To assess the level of infestation, a Global Positional System (GPS) unit is used to record the precise locations (latitude and longitude) of tall whitetop infestations. This requires either hiking or driving alongside the river and entering ("geocoding") the location of infestations.

The East Fork of the Walker, from the Nevada-California border to its confluence with the main stem south of Yerington, was selected to test the program. The East Fork was selected because over approximately 38 miles of river, there are only 5 private landowners plus a ranch owned by the US Forest Service. The small number of landowners facilitated obtaining the permission and cooperation to enter private lands.

The increase in subdivided farmland and the resulting larger number of on-site and absentee landowners along the West Fork complicated inventory efforts in terms of seeking permission to enter private properties. However, the Smith Valley Resource Conservation District (SVRCD) indicated there was a significant infestation problem in a localized 1.28-mile long section of the West Fork. Thus, SVRCD acquired permission from the 7 property owners involved and additional data were collected.

Step #2: Educate Stakeholders

In Step #2, data collected through the GPS inventory is used to build a Geographic Information System (GIS) database. Using GIS software (ARCVIEW™), maps are created from the data to educate stakeholders.

Maps were created to educate stakeholders about tall whitetop infestations along the West Fork (Figure 1) and the East Fork (Figure 2) of the Walker River. The maps illustrate area-feet infestations and where the infestations are on the river system. The aggregate acreage of tall whitetop infestation was determined using the GIS database and software. Infestation along the 38 miles of the East Fork is approximately 50 acres while along the 1.28-miles of the West Fork the infestation totaled approximately 100 acres.

A workshop was held to present the maps and explain the purpose of the inventory. Information was also presented to explain why noxious weeds, such as tall whitetop, are a threat to agriculturists, recreationists, and others. Various control measures were recommended as well. The maps and estimated acreage figures were used to educate stakeholders about the level of infestation of tall whitetop.

The workshop concluded with a facilitated discussion to identify whether stakeholders believed they had a significant problem that warranted concerted action. The consensus was that although the estimated infestations were still manageable, it was time to form a plan and take action. Stakeholders brainstormed strategies to manage tall whitetop. Stakeholders represented affected resource conservation districts in the area as well as the Walker Weed District, Lyon County government, Walker River Irrigation District and interested private property owners.

Step #3: Partnerships to Manage Weeds

Building partnerships among stakeholders to manage invasive weeds is the final and perhaps most critical step of the 3-step program. Without cooperative partnerships, coordinated strategic weed management is not possible.

To build partnerships, Nevada Cooperative Extension used the West Fork map to help SVRCD target their abatement efforts. SVRCD used maps from the assessment step of the program to apply for grant money from EPA water quality funds to abate tall whitetop along the 1.28-mile section of the West Fork River. They were successful in acquiring approximately \$21,000 to abate tall whitetop over a 3-year period.

Similarly, the East Fork map was used to help the Walker Weed District target abatement efforts in that area. Private landowners and the USFS have also been able to voluntarily target their efforts more effectively.

The assessment and education steps of the program resulted in an improved understanding of the tall whitetop problem and the need to seek outside funds to help in weed abatement efforts. SVRCD has volunteered to lead an effort to coordinate affected interests to work together to establish a basin-wide Weed Management Area. After drafting a Memorandum of Understanding with the signatures of various stakeholders, including Lyon County government, Walker River Irrigation District, Walker River Tribe and stakeholders in Mono County, California, the Weed Management Area board of directors plans to create a basin-wide management plan for noxious weeds and seek funding for strategic abatement.

Summary

The 3-step program to manage noxious weeds developed by Nevada Cooperative Extension can successfully estimate and illustrate the extent to which a particular noxious weed is a problem. Although tall whitetop was used to pilot the program, other noxious weeds can be targeted similarly. The assessment step (#1) can be used to develop a precise inventory of infestation that can be used in the education step (#2) to increase awareness and share information about the problem and how to manage a particular noxious weed species. The final step (#3), building partnerships, is perhaps the most critical step as it determines whether the information collected and presented is used to take action to manage a weed proactively and cooperatively.

In the Walker River Basin, the 3-step program resulted in collaborative efforts to join resource conservation districts, a weed district, county government, an irrigation district, and individual landowners in pursuing the creation of a basin-wide Weed Management Area. Noxious weed management is successful if citizens are involved as partners from the beginning in building a coordinated strategy. To accomplish this, however, they must be aware of the extent of the problem or infestation. This requires both inventory and education.

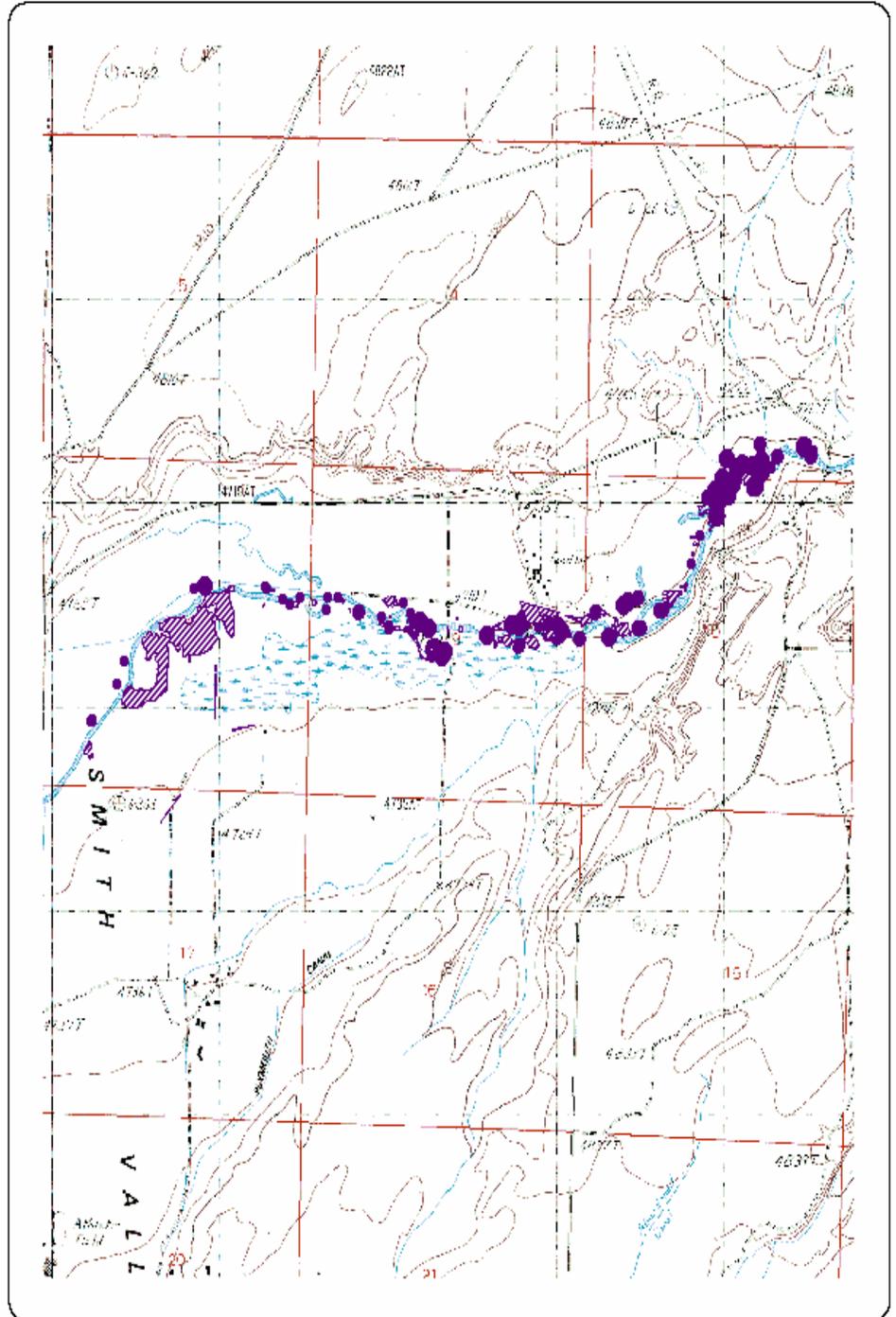
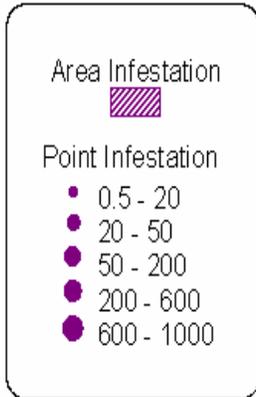
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Figure 1

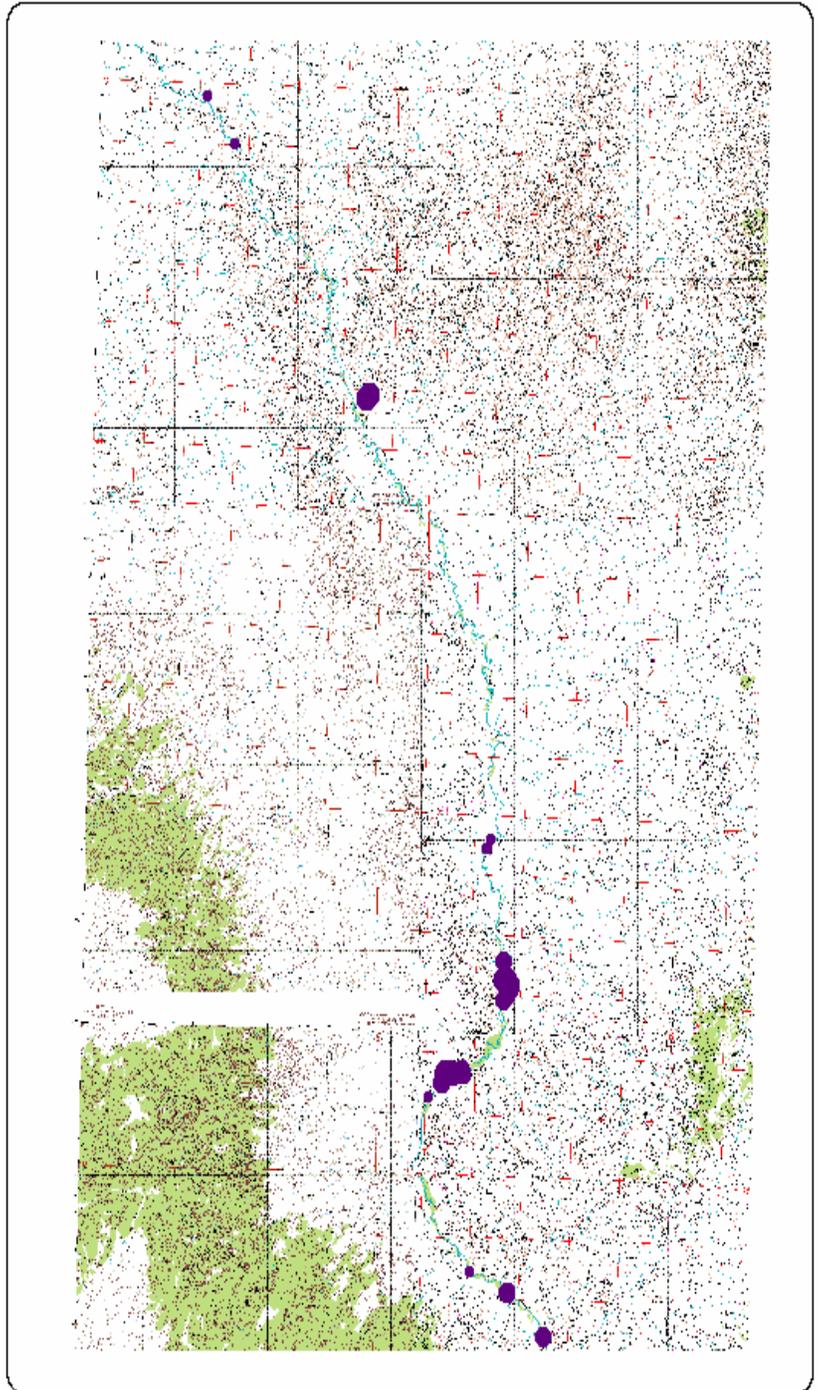
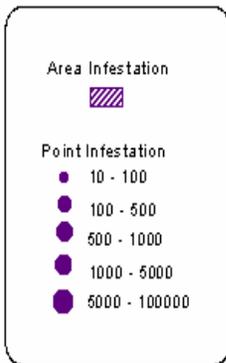
West Walker River Tall Whitetop Infestation



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Lyon County Office
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Figure 2

East Walker River Tall Whitetop Infestation



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