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Final Results

EW95-002

Sustainable Noxious Weed Management on Northwestern Rangelands

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Montana

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OBJECTIVES

1. Overall objectives: The overall objective was to provide the Cooperative Extension Service, Weed Conservation Districts, Soil Conservation Service, Agricultural Stabilization and Conservation Service, Farm Home Administration, and other appropriate agency personnel in the Pacific Northwest and Montana the knowledge and educational materials necessary to competently teach integrated and sustainable noxious rangeland weed management at a local or state level.
2. Economical objectives: The training manual and workshop will include criteria for evaluating, selecting, and integrating sustainable weed management practices on a whole ranch basis, consistent with existing IRM (integrated ranch management) or TRM (total ranch management) programs.
3. Sociological objectives: The training manual and workshop will incorporate the sociological factors that influence the adoption of integrated and sustainable weed management strategies, including the relationships between the environment, social structure, and weed management and ranching operations.

ABSTRACT

The overall purpose of this professional development project is to provide the Cooperative Extension Service, Weed Conservation Districts, Soil Conservation Service, Agricultural Stabilization and Conservation Service, Farm Home Administration, and other appropriate agency personnel in the Pacific Northwest and Montana the knowledge and educational materials necessary to competently teach integrated and sustainable noxious rangeland weed management at a local or state level.

Eleven group leaders have organized a working group made up of people representing those agencies and personnel who will be using the educational program to ensure "buy-in". Each group leader is in the process of facilitating the development of a "hands-on" workshop, activity, and presentation for their specific portion of the project. The specific portions are 1) Impacts of Noxious Weeds on Ecological and Economic Systems, 2) Survey, Mapping, and Monitoring noxious weeds on Rangelands, 3) Coordinated Weed Management Planning, 4) Economic Evaluation Procedures for Noxious Weed Management, 5) Integrated Weed Management on Rangeland, 6) Preventing Noxious Weed Invasion, 7) Early Detection and Eradication of New Weed Infestations, 8) Grazing and Weeds 9) Biological Control of Noxious Weeds, 10) Herbicides and Rangeland. 11) and Revegetating Noxious Weed-Infested Rangeland.

Several demonstrations of sustainable weed management have been established and are being used in workshops designed to introduce educators and agency personnel to using the material, give direct information about integrated and sustainable noxious weed management, and provide an opportunity to interact with major participants of the educational program.

SPECIFIC PROJECT RESULTS

An eleven chapter educational book for the development of workshops has been compiled. It utilizes text, field keys, MONTGuides, Bulletins, computer models, and slide presentations. The chapters are: 1) Impacts of Noxious Weeds on Ecological and Economic Systems, 2) Survey, Mapping, and Monitoring noxious weeds on Rangelands, 3) Coordinated Weed Management Planning, 4) Economic Evaluation Procedures for Noxious Weed Management, 5) Integrated Weed Management on Rangeland, 6) Preventing Noxious Weed Invasion, 7) Early Detection and Eradication of New Weed Infestations, 8) Grazing and Weeds 9) Biological Control of Noxious Weeds, 10) Herbicides and Rangeland. 11) and Revegetating Noxious Weed-Infested Rangeland.

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The workshops focus around a few key points that can be emphasized with interactive and innovative activities. An example would be a series of herbarium mounts along with a simple key for noxious weed identification. This approach allows the participants to actively work on identifying the main characteristics of the weed and view all the parts of the plant (seed, flower, roots) in detail. This method will provide the students an understanding of the subject and allow them time to interact with their instructors, reinforcing the lesson.

In Montana, the material developed from this project has been used for the Noxious Weed Management Certification Course, a two-year course that involves class room lectures and workshops, field tours, and individual projects. The course has been offered for three years and has served personnel in the Cooperative Extension Service, Weed Conservation Districts, Forest Service, B.L.M. private weed management companies, and individual land owners. Individuals who complete the course receive a weed management certificate from the state of Montana. Feedback about the course format and content from participant has been very positive, and suggestions for improvement have been incorporated into the workshop.

Numerous publications have evolved from this project. Most notable is the book Biology and Management of Noxious Rangeland Weeds, edited by Roger L. Sheley and Janet K. Petroff and published by Oregon State Press of Corvallis, Oregon. The book is a cooperative effort of the participants of this project. The book is an important manual for agency field personnel and other land managers, and has been used as a text book of university course work.

DISSEMINATION OF FINDINGS

A diverse array of educational materials have been developed as a result of this project ranging from popular press articles, to Extension Bulletins and scientific journal articles, to computer software. A number of the materials developed from this project have served as a basis for continuing expansion of ideas. The best example is the development of an educational computer model that shows the life history of a weed and how management strategies effect the population of the weed over a 20 year period. This model has been used extensively in classes and workshops as an educational tool for better understanding of the ecology of weeds and how management effects weed ecology. Continuing work on this model is in progress to develop decision-support models for weed management. These models will provide greater educational opportunities and important management tools. Computer models can be easily disseminated via the Internet.

Educational materials developed from this project have been used in many workshops and field tours. The Montana Noxious Weed Certification Course has used materials developed from this project for three years to educate agency personnel, land managers, and land owners. Materials have provided and will continue to provide the foundation for numerous Extension workshops and field tours. Other training programs have used materials developed from this project including the Regional Noxious Weed Short Course (Western Society of Weed Science) and the Regional Noxious Weed Free Feed and Forage Program. The demonstration sites have proved to be invaluable in showing management practices on the ground. Numerous publications in the popular press, extension publications and the scientific literature have resulted from materials developed during this project.

POTENTIAL BENEFITS

Invasive species have a major impact on wildlands in the western United States and Canada and the problem is rapidly expanding. It is becoming more apparent that solutions to the problem are not simple, and will involve understanding the ecology of rangeland systems and weeds. For weed management to be sustainable and economical, we will need to develop site specific and situation specific integration of tools and technologies. The benefit of this project is education of land managers and trainers of land managers so they are prepared for weed management of the future. Materials developed in this project provide a basis for the education of a wide range of people for ecologically based sustainable weed management.

IMPACTS ON AGRICULTURAL PROFESSIONALS

Changes in attitudes and understanding are apparent in the language used by agency personnel and other managers in technical reports and popular press articles. Ecological terms such as succession and competition are common in the reports and articles. Instead of discussing herbicide rates or the number of insects to release, the focus is more on developing competitive desirable plants, integrating management options, and site specific applications.

This summary was prepared by the project coordinator for the 2000 reporting cycle.