

# The Integrated Use of Biological and Chemical Control on the Noxious Weed Canada Thistle

Jason Nichols  
Flagler, Colorado

In 1989 the Flagler Future Farmers of America (FFA) Chapter in Cooperation with the Colorado Division of Wildlife undertook a Canada thistle weed eradication project on the Flagler State Wildlife Area in eastern Colorado. Canada thistle is a prohibited noxious weed that invades rangeland after depletion of decreaser and increaser plants has occurred. Canada thistle is considered an invader plant. The primary purpose and goals of this project was to eradicate the Canada thistle at the Flagler State Wildlife Area by 90% in 10 years. This project was the first of its kind to be implemented on Colorado public lands; caution was necessary because of the fear of potential harm to wildlife and their habitat.

**The Flagler State Wildlife Area** is located 4 miles east of Flagler, Colorado. The wildlife area encompasses 300 acres, with approximately 160–180 acres of land being heavily infested with Canada thistle.

In the fall of 1989, the Flagler FFA Building Our American Communities (BOAC) committee surveyed the area of infestation to determine to what degree the chapter was to commit. The committee along with the Colorado Division of Wildlife technicians located and marked four plots of the most dense thistle population. This step was performed for later evaluation of the project results.

The project called for a combination biological and chemical control program. By the spring of 1990 the Canada thistle below the dam had virtually crowded out all natural vegetation because of its ability to reproduce by seeds and underground stems known as rhizomes. Prior to action by the Chapter, the Canada thistle height was 4–5 feet with 75% density of cover. The Chapter in cooperation with the Division of Wildlife met at the area in the spring of 1990 to apply the first application of herbicide. The chemical used was 2-4-D amine at a rate of 1 lb per acre combined with a surfactant. In the fall of the year after a heavy frost, FFA members applied 3/4 lb 2-4-D and 4 oz of Banvel per acre combined with a surfactant. These chemicals were used because of their selectiveness for broadleaf plants and because of their limited environmental residual. In the spring the chemical was applied during the flowering stage of Canada thistle. Timing of the chemical application was critical since the plant had used most of its energy to produce the bloom and little energy remained to produce further growth or seed production after the chemical application.

**In the spring of 1991** the Flagler FFA Chapter, in conjunction with the Division of Wildlife and local community members, implemented the biological part of the eradication project. We grazed 180 cow calf pairs for 41 days and in 1992 we grazed 180 cow calf pairs for 48 days. Although this program allowed the cattle to graze the entire 300 acres at the wildlife area, it was a controlled, short term, intensified grazing method. The cattle had two effects: First they trampled the Canada thistle. Our visual inspections indicated the cattle actually grazed the Canada thistle rosettes. Second, they dispersed the litter and organic matter that had accumulated from 25 years of non-use. Dispersing and trampling the plant litter allowed the sun to reach the desirable plants to stimulate their growth.

During the eradication process the Chapter members of the Flagler FFA obtained hands-on experience in applying the herbicides. Cooperation with local individuals, businesses, and government agencies enabled the Chapter to obtain the needed equipment and technical assistance to undertake the project safely and efficiently. Safety was an important consideration in the project. FFA members had studied agricultural chemicals in their agriculture education classes and applied for and received their private applicator's license from the Environmental Protection Agency. Flagler Aerial Spraying donated rubber gloves and other safety equipment to protect the members during the application process. Cooperation with other agencies and individuals was vital to ensure the success of this project.

**As a result of this project**, a large diversity of wildlife is again starting to use the area as a habitat location and food source. Desirable decreaser plants are again starting to regain their stand in the overall plant community of the lake. Some of the desirable plants are: big bluestem, little bluestem, yellow indiagrass, switchgrass, sideoats grama, and prairie cordgrass. As these plants regain their stand in the plant community, they will start to choke out the other remaining Canada thistle to increase the quality of the habitat.

The Chapter realizes that we will never totally eradicate the Canada thistle, but with the continued utilization of this program we will limit the plant population of Canada thistle infestation of the area. Our goal when we began the project was to eradicate 90% of the Canada thistle in 10 years. However, the combination of chemical and grazing allowed us to attain this goal in 3 short years plus increase the native vegetation by at least 50%.

The success of our program has encouraged other businesses and agencies to utilize the same program to help manage and eradicate noxious weeds in other areas. The Colorado Division of Wildlife will use the same control program to reduce Canada thistle on three other state wildlife areas in Colorado. To continue this project the Chapter plans to incorporate the use of a Canada thistle weevil (*rhinocyllus conicus*). The weevil will be introduced into the area and later harvested to be distributed to farmers and ranchers who have Canada thistle infestations.

The weed eradication project has resulted in immense educational value for all of the Chapter members. First, the project has been a long-term activity that required advanced planning, assumption of responsibility, and sincere dedication and commitment in completing an activity. Second, the members have learned the advantages and disadvantages of cooperating with many dif-

ferent organizations as well as the necessity and importance of continuous communication. Third, the Chapter members have gained an appreciation of the value of conserving natural resources including land, wildlife, water, and trees. Moreover, the members have acquired an understanding of noxious weeds and the many different methods of control of these noxious weeds. As a result of mutual agreement between all organizations involved, the Chapter used the method which was the least hazardous, provides the quickest chemical residual, and effective for our climate. Fourth, the members, who are primarily production oriented, have gained an appreciation for diversity in adapting range conservation practices to local farms and ranches in the community. Finally, the most significant items learned were group cooperation, self esteem, pride, and service for the benefit of others.

## Controlling Juniper: Fire and Goats, A Combination?

**Holly Alexander  
Ingram, Texas**

Economical? Ecological? In the vastly changing ranching and farming society of today, there are many words like the two above that ranchers and farmers have forgotten were in their vocabulary. Finding the meaning of these extremely important words may present a problem in the range society when it comes to juniper control. How can a rancher economically and ecologically care for juniper on the precious land? Hopefully I can uncover some interesting facts and opinions that will help you finally decide that caring for our land can be done with enjoyment, ease, and fulfillment.

Juniper, as defined in Webster's dictionary is, "a small evergreen tree or shrub of the pine family, with scale-like foliage and berry-like cones; and an evergreen tree with a characteristic fragrance and durable wood." As most of us know, juniper is not always a shrub. Most species of juniper are more tree-like, which is a problem for ranchers and farmers or anyone who cares for their land.

In the juniperus family, there are many different species. The three main species I'll be referring to are the redberry juniper (*Juniperus pinchotti*), blueberry juniper



*Holly Alexander*

(*Juniperus ashei*), and eastern redcedar (*Juniperus virginiana*).

Redberry juniper is usually found in the northern and western parts of Texas. The fruit is a distinct bright red and its branches and leaves have a distinguishing characteristic of white waxy dots. The base of the tree is single-trunked and can get very large in diameter. Redberry juniper is also known as a root sprouter. If you cut off the top of the tree, it will grow back.

Blueberry juniper, commonly called ashe juniper, is mainly found on limestone formations in the Edward's Plateau where I reside. Its fruit ranges from copper color to a dark blue. The base of the tree forms many branches from the bottom. If blueberry juniper's top is cut off, it will not grow back at all. It is not a root sprouter.

Eastern redcedar can be found from Maine on down to northwestern Texas.

Redberry and blueberry junipers are the main problem in my area of residence.

Holly is a senior at Harper High School and is planning to attend Texas A&M majoring in Agricultural Science and minoring in range management.  
Editor's Note: This is the 2nd place paper in the High School Youth Forum contest at the Annual SRM Meeting in Albuquerque, New Mexico.