Roaring Fork Transportation Authority

Integrated Weed Management
POLICY AND PLAN

January 2003

Roaring Fork Transportation Authority
Integrated Weed Management
POLICY AND PLAN

TABLE OF CONTENTS

SECTION I

INTRODUCTION

1.01 Background

One of the most serious and fastest growing problems in the West today is the spread and establishment of invasive non-native plants. Some have termed these noxious weed species "biological pollutants" because their presence can drastically alter the ecological checks and balances of native ecosystem processes. Unlike chemical pollutants that degrade over time, biological pollutants have the potential to persist, multiply, and spread – affecting many aspects of our lives.

Many noxious weeds provide poorer habitat for wildlife species than their displaced native counterparts. By displacing native species, weeds contribute to loss of biological diversity and the destruction of native plants, animals and communities. In agricultural systems noxious weeds create large economic losses in both cropland and rangeland situations. They can reduce the production of food for humans and forage for livestock by crowding out native and agricultural species. Some species are toxic to livestock. Noxious weeds can alter fire patterns and intensity, raise soil nitrogen levels to unhealthy levels and affect soil erosion and aquatic habitat in nearby streams and ponds. Infestations can also affect the aesthetic qualities of a landscape and lower property values.

With the purchase of the Rio Grande Right-of-Way (ROW), RFTA inherited a serious noxious weed problem. Past abusive and neglectful land practices left ROW soils degraded and much of the native plant life disturbed or destroyed. This has allowed opportunistic noxious weeds to invade and establish themselves in large numbers. Over the past three years much work has been done and progress has been made to control weeds, clean up trash and brush, and bring the soils and native vegetation back into balance, but there is still much more to do. The challenge for RFTA is to develop and persevere with a coordinated, multi-strategy approach to managing weeds that combines the most appropriate weed control methods in a way that minimizes economic, health and environmental risk to meet weed management plan objectives.

1.02 Policy

In response to the Colorado Noxious Weed Act, RFTA has adopted a policy to curb the degradation of our environment by implementing this Integrated Weed Management Policy and Plan. The Roaring Fork Transportation Authorities Integrated Weed Management Policy is a comprehensive approach that gives priority to prevention and management of noxious weeds by Integrated Weed Management (IWM) methods. Whenever appropriate, RFTA's policy shall be to make decisions regarding the control and eradication of noxious weeds on all property within its control in accordance with the principles of IWM .

1.03 Purpose of Policy and Plan

The purpose of this policy and plan is to provide common guidelines for all RFTA employees involved in the management of noxious weeds on the RFTA rail corridor and other RFTA properties. This plan provides for RFTA's compliance with the Colorado Noxious Weed Act by detailing IWM options for controlling noxious weeds. Options include preventive measures, good stewardship, and IWM control techniques. The intent is to incorporate those options that are the least environmentally damaging and are practical, timely, and economically feasible.

The RFTA corridor was acquired in part with a grant from GOCO, and purchase agreements had originally required a conservation easement on the property. This conservation easement has been replaced with conservation covenants that encumber specific sections of the corridor and require that they be preserved, maintained and enhanced as a linear, natural and scenic open space, appropriate for transit, trails, recreation, wildlife, environmental, and educational purposes.

1.04 State, County and Municipal Regulations

The Colorado Weed Management Act (C.R.S. 35-5.5-101, et. seq.) was signed into state law in 1990 and amended in 1996. The Colorado Noxious Weed Act states that noxious weeds pose a threat to the natural resources of Colorado. The Act requires that the Board of County Commissioners of each county and the elected officials of each municipality adopt a Noxious Weed Management Plan for all lands within their boundaries. As a property owner within three counties and various municipalities, RFTA is obligated to do the following:

- Obtain lists of all designated noxious weeds from the counties and municipalities in which RFTA properties exist.

- "Develop a management plan for the integrated management of noxious weeds that considers all appropriate and available control and management methods and favors those methods that are practical, economically reasonable, and the least environmentally damaging."

1.05 RFTA Noxious Weed List

Noxious weeds are those alien plant species listed as "noxious" pursuant to the Colorado Noxious Weed Act. The Act defines noxious weeds as plant species that are not indigenous (non-native) to the State of Colorado and meet one or more of the following criteria:

- ❖ Aggressively invades or is detrimental to economic crops or native plant communities;
- ❖ Is poisonous to livestock;
- ❖ Is a carrier of detrimental insects, diseases, or parasites;
- ❖ The direct or indirect effect of the presence of this plant is detrimental to the environmentally sound management of natural or agricultural ecosystems.

There are currently sixty-eight plant species included on the State Noxious Weed "A" list and from this list each local governing body chooses the species most problematic for their area to be included in their own weed plans. The "B" list consists of ten plants that have been prioritized by the state as being the most widespread and causing the greatest economic impact. The "C" list includes fifteen weeds that are not yet widespread but may be a threat to Colorado lands in the future. By law, landowners must contain and control these species before they significantly impact the economic and environmental values of the State.

Below is a list that combines the noxious weed lists of Garfield, Eagle and Pitkin Counties and comprise the RFTA Designated Noxious Weeds List. Not all of the weeds on this list are present in each county, nor has every weed on the list been identified in the Roaring Fork Valley. This list represents the most prevalent and aggressive noxious weeds currently identified in the Valley and those noxious weeds most likely to invade the area from other areas.

(See County Weed Plans for descriptions and drawings of each plant. Also, see Colorado State Weed List for additional weeds. Weeds in bold have been identified on the RFTA rail corridor.):

1. **Canada thistle *(Cirsium arvense)***
2. Chicory *(Cichorium intybus)*
3. **Common burdock *(Arctium minus)***
4. **Common tansy *(Tanacetum vulgare)***
5. **Dalmation toadflax *(Linaria dalmatica)***
6. Dames rocket *(Hesperis matronalis)*
7. **Diffuse knapweed *(Centaurea diffusa)***
8. **Field bindweed *(Convolvulus arvensis)***
9. **Hoary cress, White top *(Cardaria draba)***
10. **Houndstongue *(Cynoglossum officinale)***
11. Jointed goatgrass *(Aegilops cylindrical)*
12. **Leafy spurge *(Euphorbia esula)***
13. Mediterranean sage *(Salvia aethiopis)*
14. **Musk thistle *(Carduus nutans)***
15. **Oxeye daisy *(Chrysanthemum leucanthemum)***
16. **Plumeless thistle *(Carduus acanthoides)***
17. **Poison hemlock *(Conium maculatum)***
18. Purple loosestrife *(Lythrum salicaria)*
19. **Russian knapweed *(Centaurea repens)***
20. **Russian olive *(Elaeagnus angustifolia)***
21. Salt cedar *(Tamarix parviflora)*
22. Salt cedar *(Tamarix ramosissima)*
23. **Scentless chamomile *(Anthemis arvensis)***
24. **Scotch thistle *(Onopordum acanthium)***
25. **Spotted knapweed *(Centaurea maculosa)***
26. Wild caraway *(Carum carvi)*
27. Yellow starthistle *(Centaurea solstitialis)*

28. Yellow toadflax *(Linaria vulgaris)*

Other noxious weeds identified on the RFTA rail corridor (the most problematic for RFTA are in bold):
From the State list:

1. Bull thistle *(Cirsium vulgare)*
2. **Chinese clematis *(Clematis orientalis)***
3. **Common mullein *(Verbascum thapsus)***
4. Common St. Johnswort *(Hypericum perforatum)*
5. Downy brome *(Bromus tectorum)*
6. Dyer's woad *(Isatis tinctoria)*
7. Flixweed *(Descurainia sophia)*
8. Green foxtail *(Setaria viridis)*
9. Johnsongrass *(Sorghum halepense)*
10. **Kochia *(Kochia scoparia)***
11. **Perennial pepperweed *(Lepidium latifolium)***
12. Puncturevine *(Tribulus terrestris)*
13. Quackgrass *(Elytrigia repens)*
14. Redstem filaree *(Erodium cicutarium)*
15. **Russian thistle *(Salsola collina, Salsola iberica)***
16. Sulfur cinquefoil *(Potentilla recta)*
17. Wild mustard *(Brassica kaber)*
18. Yellow foxtail *(Setaria glauca)*
19. Yellow nutsedge *(Cyperus esculentus)*

Section II

Overview of Adaptive IWM Approach

2.01 Integrated Weed Management ("IWM")

Integrated Weed Management (IWM) is a coordinated, interdisciplinary, multi-strategy approach to managing weeds that combines the most appropriate weed control methods in a way that minimizes economic, health and environmental risk to meet weed management plan objectives. IWM is based on eliminating noxious weeds and preventing their reproduction while protecting and establishing desired plant species and communities. The RFTA IWM Plan gives preference to the safest control methods and uses conventional chemical herbicides only as a transitional strategy where no non-chemical solution can be found.

Unlike the herbicidal approach to weed control, with IWM there are no standard solutions. IWM methods respond and evolve to meet the needs of the particular situation. IWM is an on-going process rather than any specific actions, where the outcome of control efforts may vary. It is thoughtful and proactive rather than reactive, and seeks to understand the prevention rather than mere treatment of symptoms. IWM methods respond to the complexity of the environment and, therefore, inherently require more knowledge, thought, monitoring, adaptability and long-range planning than a program of simply spraying chemicals based on a calendar schedule.

IWM is not without problems and risks. However, its risks are different and less hazardous to the environment and human health. Some of the IWM strategies used to control heavy infestations may cost more in the short run and have more gradual results, but IWM will be less expensive in the long run, particularly if there are environmental and health consequences that result from the reliance on chemicals. Some of the benefits of IWM include:

- Improved public relations by addressing concerns for the environment
- Lower long- term costs
- Enhanced beauty through revegetation and elimination of weeds
- Reduced liability for RFTA
- Reduced health risk to the public and RFTA personnel
- Reduced water contamination
- Community education and an example of weed management with minimum herbicide use
- Increased resiliency of native ecosystems

The RFTA IWM Plan follows an adaptive management approach presented in the book *"Creating an Integrated Weed Management Plan"*, from the Colorado Dept. of Agriculture. Below are the basic steps used to develop this general plan as well as an IWM Yearly Operational Plan for RFTA:

- Describe the property and identify significant and valuable resources
- Inventory the property for weeds
- Develop land management goals and weed management objectives
- Set priorities for weed management
- Select weed management actions
- Compile an integrated weed management plan
- Develop a monitoring system and use this information to modify and improve weed management objectives, priorities, and IWM plans, thereby starting the cycle again.

2.02 Integrated Weed Management Treatment Methods

The optimum method or methods for weed management will vary depending on a number of site-specific variables. Factors to be considered should include soil type and stability, grade, local climatic conditions, native vegetation, presence or absence of the weeds natural enemies, existing and proposed land use, proximity to wetland or riparian areas, availability of irrigation water, weed type and stage of growth, and severity of infestation. The management method selected should be the least environmentally damaging, yet practical and reasonable in achieving the desired results.

IWM methods include, but are not limited to:

- Prevention and detection – Prevention is the most effective noxious weed control method available for non-infested lands. Protecting weed-free plant communities is the most economical and efficient weed management practice and therefore the highest priority. See the Garfield County Noxious Weed Management Plan for prevention and detection strategies.
- Cultural control methods – The practice of encouraging desirable plants over noxious ones. Mulches, cover crops and the establishment of beneficial grasses and forbs protect soil life from high altitude sun, cold and wind and retard weed growth. The least amount of weeds grow where there is a canopy of trees and shrubs with an under story of grasses and forbs.
- Mechanical control methods – Using machines such as a weed eater, mower, skid-steer backhoe/loader, etc. to physically disrupt plant growth and assist with the revegetation and rehabilitation of disturbed sites.
- Biological control methods – the use of living organisms to disrupt the growth of weeds, such as weed-eating insects, weed seed and rhizome-digesting microorganisms, manipulation of livestock or wildlife grazing strategies. Biological controls have a higher level of problems and risks associated with their use. Use only according to RFTA guidelines contained in the RFTA IWM Yearly Operation Plan.
- Manual control methods – Pulling and digging.

- Soil improvement - Compost, microorganisms, natural fertilizers, minerals, nitrogen fixing plants, mulches and cover crops are all soil builders that will help bring disturbed ROW soils back into balance.
- Revegetation/restoration of plant communities with non-invasive species adapted to this bioregion.
- Controlled burns and/or burn piles – (With Board approval only)
- Education of Board, staff, temporary workers, volunteers, and neighbors about noxious weed problems and solutions when appropriate.
- Volunteer Programs – Citizen volunteers, managed by RFTA Staff, contribute to the stewardship of RFTA public-owned land by picking up trash and using IWM methods on weeds. (With Board approval only)
- Conventional herbicides – Use only as a last resort and according to RFTA guidelines contained in the RFTA IWM Yearly Operational Plan.

SECTION III

Property Description

3.01 Introduction

The ROW is approximately 33 miles long with 18.3 miles in Garfield County, 3 miles in Eagle County and 12 miles in Pitkin County. The width is mostly 100 ft. but varies from 50 to 200 ft. Total acreage is approximately 346 acres and the elevation rises from approximately 5700 ft. in Glenwood Springs to 7500 ft. in Woody Creek.

Due to its length and diverse topography, the ROW includes a variety of land covers and habitat types. A complex mosaic of interacting habitats tracing the river corridor and valley contributes to the area's rich biodiversity.

Land cover types include: Mesic shrub land (Rocky Mountain maple, serviceberry, chokecherry, bitterbrush and Gambol oak shrub communities); big sagebrush; pinion/juniper; riparian forest (montane, narrow leaf cottonwood/chokecherry and cottonwood); grasses/forbs (and noxious weeds).

Habitat types include: Montane riparian forest, narrow leaf cottonwood/chokecherry association; west slope sagebrush shrub land; cottonwood riparian forest; and mixed mountain shrub land. In addition to these natural habitat types, urban landscape communities, disturbance communities, and agricultural monocultures occur on and along much of the ROW.

Wetlands on the ROW occur along the Roaring Fork River, creek and gulch crossings and irrigation ditches. Wetland community types include palustrine (wet meadows, willow shrublands, and the cottonwood/alder/spruce forests that occur within the floodplains and outside the banks of the Roaring Fork River) and riverside wetlands (linear wetlands that occur within the banks of the Roaring Fork River, its tributaries, and irrigation channels).

Most of the Rio Grande ROW has degraded soils that are slowly recovering from the land abuse of the railroad companies. Much of the vegetation consists of pioneer species that are able to thrive in these degraded soils, including many noxious weeds. Some places have struggling native plant communities, others have established native plant communities that provide valuable wildlife habitat. Threatened and endangered species found on or near the ROW include the Bald Eagle, Great Blue Heron (two rookeries are on adjacent properties), and the River Otter.

3.02 ROW Management Unit Descriptions

Linear mileage is approximate since both the railroad and AT&T milepost markers are inaccurate. At present these and road and driveway crossings on the ROW are the best landmarks we have to use. Railroad milepost markers are noted with an "MP" in front of the number. AT&T milepost markers are noted with just the number.

1. Pitkin County - 12 Miles approx.

Everything on the ROW from Emma Road to Woody Creek Road is in this section. Pitkin County currently takes care of this section according to their weed management plan and policy and we reimburse them for a portion of their time and materials. The trail was completed on this section in the summer of 02.

Conservation Covenant Area 7: MP 382.19 > 384.90 Just east of Emma Rd > just west of the Wingo Trestle.

Conservation Covenant Area 8: MP 384.9 > 385.1 Surrounds the Wingo Junction bridge.

Conservation Covenant Area 9: MP 385.48 > 388.05 u/v side of Wingo Subdivision > southeast end of Dart Ranch on Lower River Road.

Conservation Covenant Area 10: MP 390.58 > 393.67 Lower River Rd crossing to the end of the ROW at Woody Creek Rd.

2. Emma – Eagle County, 1.25 Linear Miles

Emma Road 381.50 > Hook's Lane 380.25.

Conservation Covenant Area 6: 376.14 > 381.82 includes this entire section Emma Rd > Hooks Lane.

A new section of the Rio Grande Trail should be constructed here in the summer of 2003.

3. Hook's Spur – Eagle County – 1.93 Linear Miles

Hook's Lane 380.25 > First driveway 380.24 > Clear area 380.17 > 380.09 > Second driveway with large red rock 380.04 > 379.44 > 378.32 End of Hook's Spur, Rock Bottom Ranch.

Conservation Covenant Area 6: MP 376.14 > 381.82 includes this entire section, Hooks Lane to Rock Bottom Ranch

4. River Conservation – Eagle County – 2.14 Linear Miles

End of Hook's Spur, Rock Bottom Ranch 378.32 > 378.08 > 377.40 > 377.02 > MP 377 > 376.27 > Catherine Bridge 376.18.

Conservation Covenant Area 6: MP 376.14 > 381.82 includes this entire section, Rock Bottom Ranch > Catherine Store Bridge

The right of way parallels the Roaring Fork River from the Catherine Bridge to Rock Bottom Ranch, home of the Aspen Center for Environmental Studies.

5. County Road 100 - Garfield County – 2.9 Linear Miles

Catherine Bridge 376.20 > 375.37 > 375.31, Ackerman Log Homes > MP 374 > 374.44, Carbondale Mini Storage > 374.42, 2nd Storage driveway > Mid Con, large trees > 374.24 > 274.21 > MP 374, Rose Lane > 1st Driveway > Main Street XX, Carbondale 373.30.

6. Carbondale – Garfield County, Town of Carbondale – 1.07 Linear Miles

Main Street XX, Carbondale 373.30 to Hwy 133, 372.23

One mile of trail was constructed on this section in 2002.

7. Hwy 133 to Satank Bridge – Garfield County - .71 Linear Miles

Hwy 133, MP 372.11 > 371.54 (at MP 372) > Satank Bridge 371.40.

Conservation Covenant Area 5: MP 371.69 > 361.83 Surrounds the Satank bridge

Lots of brush and dead trees to clear out if we are in need of time consuming projects.

8. Satank Bridge to Aspen Glen - Garfield County – 1.1 Linear Miles

Satank Bridge 371.40 > 371.23 > 371.11 > 370.37 > Green Gate at u/v end of Aspen Glen 370.30 approx.

Conservation Covenant Area 4: MP 370.5 to 370.92 just u/v of Green Gate at u/v end of Aspen Glen > a private xx just below Crystal & Roaring Fork River confluence.

Conservation Covenant Area 5: MP 371.69 > 371.83 Surrounds the Satank Bridge.

9. Aspen Glen - Garfield County – 1.9 Linear Miles

Green Gate at u/v end of Aspen Glen 370.30 approx. > 370.26 > Ditch xx tracks 370.22 > 370.15 > 370.04 > MP 370 > Aspen Glen entrance 369.53 > Private Dr @ d/v end of hay field 369.36 > 369.26 > Fishing Access XX, no number, 2-way driveway > Transformer 369.05 > MP 369 > Bair Chase property line, where ditch goes underground 368.40.

Conservation Covenant Area 3: 368.50 > 369.00

Can park near the Green Gate and walk onto ROW, but gate is locked to vehicles. Access also at Aspen Glen entrance 369.53 and Private Drive 369.36.

10. Bair-Chase – Garfield County – 1.18 Linear Miles

Bair Chase property line, where ditch goes underground 368.40 > 368.31 > 368.27 > 368.26 > Bridge 368.07 > 368.04 > 367.45 > 367.26 > just before Sopris Restaurant 367.22.

11. Bair-Chase to CMC Light – Garfield County - .75 Linear Miles

Bair-Chase 367.22 > 367.12 > Sopris Restaurant/Summit House 367.01 > CMC/Valley Liquor light, Old Hwy 82/CR 154/Hwy 82 intersection 366.47.

12. CMC Light to Hanson – Garfield County – 1.27 Linear Miles

CMC/Valley Liquor light, Old Hwy 82 (CR 154)/Hwy 82 intersection 366.47 > Lacoma Homes, Colorado Properties > Modern Cabinet Shop > Modern Kitchen Center 366.30 > 366.27 > 366.15 > 366.07 > MP 366 w/CO flag > 365.45 > 365.37 > Hanson Equipment driveway, RR XX signal, light at Hwy 82, 365.20.

Conservation Covenant Area: 366.47 (¼ m below CMC Rd.) > 365.40 CR 107, Coryell Ranch Rd.

This has difficult access. Highrailer is recommended for all work back here except close to intersections. Access limited to CMC light and Hanson's driveway, although you could walk onto the ROW from one of the businesses or residences on the W. side of the tracks. The E. side of the tracks has a steep incline from the Hwy down to the large ditch that runs from the 366.30 to Hanson's driveway. Then there is another steep incline from the tracks up to the ditch. Along much of the ditch is difficult/dangerous territory to cover with a backpack sprayer due to thick brush/willows and many weeds. The large ditch alternates between covered and uncovered. The ditch crosses under the tracks to the other side and runs open along the fence line from 366.27 to near the CMC light.

13. Hanson to Orrison – Garfield County - .16 Linear Miles

Hanson Equipment driveway, RR XX signal, light at Hwy 82, 365.20 > 365.12 > Orrison Distributing driveway 365.04.

14. Orrison to Jackson – Garfield County - .71 Linear Miles

Orrison Distributing driveway 365.04 > MP 365, switch 750, culvert under Hwy > 364.49 > 364.38 > switch 173, large dead cottonwood > Jackson's XX 364.33.

There is an old fence line, mostly just posts, that runs parallel to the Hwy and about 15 feet from it, MP 365 > 364.33.

15. Jackson to Buffalo – Garfield County - .87 Linear Miles

Jackson's XX 364.32 (4419 Hwy 82) > 364.17 > Double Driveway/Residence 364.11 > Holy Cross Driveway MP 364 > 363.48 > Buffalo Valley Driveway 363.45.

Conservation Covenant Area: MP 363.82 > 363.45 Buffalo Valley Driveway

There is a dirt road that you can drive on near the Hwy from 364.32 Jackson's XX to 364.11 double driveway.

16. Buffalo to Blake – Garfield County – 1.16 Linear Miles

Buffalo Valley XX 363.45 > 363.37 > 363.27 > 363.20 > 363.11 > MP 363 > 362.47 Cemetery > 362.29 Blake/McDonalds light. Mostly down steep slope from Hwy 82.

Conservation Covenant Area: MP 363.45 Buffalo Valley Dr > 362.90 S end of Cemetery

Bulldozing next to Hwy side of tracks, most of this section, ATT is supposed to reseed.

Wash-out starts at 363.11 and goes to d/v end of Cemetery.

17. Blake to 27th Street–Garfield County, City of Glenwood Springs.16 Linear Miles

Blake/McDonalds light 362.29 > 362.18 > 27th/Career Center light 362.13. Also, Grease Monkey, NAPA, Church of Latter Day Saints, Harley Davidson, WalMart, Frontier Lodge

Can drive on most of this section. There is a dirt road near the fence line. Get on at the Church of Latter Day Saints or behind the Career Center at 27th.

18. 27th St. to 23rd St. Garfield County, City of Glenwood Springs - .73 Linear Miles

Hwy 82/27th Street Career Center light 362.13 > Hwy 82/Grand/23rd Alpine Bank light, Sid's Bottles, Texaco 361.40 > MP 362 > 361.40. Nissan, Alpine Motors.

19. 23rd St. to 8th St. - Garfield County, City of GWS – Approximately .9 Linear Miles

Hwy 82/Grand/23rd, 361.40 > 20th St/Safeway > Coryell XX/HS Stadium/RF Dr/Park Dr. > 14th St./High School, MP 361 > 13th St/white Texaco silos > Riverside Dr/culvert XX > 11th St/Grey metal city bldgs. > 10th St./Signal light D3609 > 9th St/Elementary parking/Derailer 451 > 8th St., Double Derailer/County bldgs. (MP 361/14th St to 8th St is about ½ mile)

Parking places: 8th St. turns into a dirt road and curves around behind the Elementary School. Parking is right next to the corridor behind the Elementary School. At 11th St. you can park in the Forest Service parking lot. There is a gate that opens to the ROW at the back. Riverside Drive has parking just past the First Assembly Church. Near 14th St. there is parking and access to the ROW. The best place to park at 23rd St. is at the old abandoned gas station or right on the ROW. Can drive on paved trail that runs from 10th St. to Coryell XX. Can drive next to trail on dirt road that runs from Coryell XX to 23rd St. (or almost to 23rd St.).

SECTION IV

PLAN OF WORK

4.01 Objectives and Goals:

Goals and Objectives of the RFTA Weed Management Plan

A. Develop and implement a comprehensive noxious weed management program on all RFTA owned property.

B. Foster a spirit of cooperation among federal, state and local government agencies and private landowners.

C. Work with other government agencies and departments to institute "Best Management Practices" and/or policies that stress prevention as a weed management tool.

D. Promote and use integrated management techniques.

E. Establish and maintain healthy plant communities with native or beneficial vegetation.

F. Restore and maintain desirable plant communities, healthy ecosystems, and productive agricultural lands in Garfield County.

G. Stop the spread of noxious weeds to uninfested lands.

H. Contain heavily weed-infested areas.

a. Implement "Title 35 Article 5.5, The Colorado Weed Management Act."

4.02 Management Goals for Weed Species

Management goals will vary from species to species, by location, and over time. For some species, such as yellow starthistle, complete eradication of existing infestations and total suppression of newly identified infestations is feasible and appropriate. Containment of existing intentional plantings, exclusion of seed from new wild land or open space mixes, and elimination of targeted escaped infestations are three different management goals for certain ornamentals such as oxeye daisy. Russian knapweed, saltcedar, and Russian olive infestations are so widespread that they must be managed, in many cases, merely for containment and reduction in the rate of spread. Eradication of these stands may only be viewed as impossible in some instances, or as a long-range objective.

In all cases, revegetation, either from the existing seed bank or through supplemental planting, must be included as a management goal. Without revegetation, disturbed or denuded soils invite adventitious weed infestation.

4.03 Mapping and Inventory:

Mapping is a valuable tool in integrated weed management. As such, the vegetation manager will establish and maintain visual maps of past and present infestations of noxious weeds on county land. This will provide a graphic representation of weed management progress and needs. The primary goal of mapping will be to record the noxious weed species present, areas infested, density of infestations, and other site factors pertinent to successfully managing the infestation

4.04 Irrigation Ditches:

The Irrigation ditches within the railroad corridor pose a particularly difficult problem to solve. Education of ditch owners on the reasons for strict weed control policies will be a key element in controlling weeds in these areas. Colorado water law and the attitudes and past practices of the valley ditch owners will also play a key role.

RFTA recognizes the irrigation ditch owners right to convey water across RFTA property and to carry out traditional ditch maintenance but RFTA also must insist that these activities do not cause harm to RFTA property or cause RFTA to incur additional expenses. Traditional maintenance operations inherently create ideal conditions for spread of noxious weeds.

In order to help facilitate the control of noxious weeds and minimize the impact of irrigation ditch repair and maintenance operations on RFTA property the following rules and requirements for work done on irrigation ditches within the RFTA rail corridor.

1. To use any part of the rail corridor for access the ditch owner or company must notify RFTA 3 weeks prior to the commencement of work and complete a "notice to undertake work" form and obtain written permission from RFTA to engage in the project.
2. All spoils removed from an irrigation ditch during cleaning or repair operations must be removed from RFTA property.
3. All disturbed areas must be reseeded with a mix suitable to the area and approved by RFTA and the county in which the work is done in
4. In order to prevent damage to the rail line no tracked equipment will be allowed on the tracks.

4.05 Revegetation and Rehabilitation:

A crucial part of any weed management plan is the reintroduction of site appropriate vegetation.

Establishing a desirable plant community after noxious weeds have been removed from a highly infested area requires timely cultivation and reseeding. Since the seeds from noxious weeds may lay dormant for many years, removing all visible signs of the noxious weeds does not ensure against their return. Revegetation can help prevent the germination of weed seeds. It is important to inspect the land regularly to identify and treat small, new infestations. For proper reclamation, managed irrigation of dry areas, fertilization, and reseeding are essential to establish desirable plant communities.

Native plants are most appropriate when the goal is restoration (trying to restore native habitat). Weed-free seeds of native Colorado grasses, wildflowers or plant species appropriate to the site may be purchased, but the best source for seeds is from native species that grow in the immediate vicinity of the infestation. They will be best adapted to local conditions and will help maintain local integrity and genetic viability. Using native plants or seeds to reclaim disturbed land reduces degradation of native ecosystems, reduces the need for herbicides and conserves water resources. Native plants will provide a broad biological diversity and help keep Colorado looking like Colorado with a unique regional landscape that sets us apart from other areas of the country.

When the goal is reclamation (reseeding for quick ground cover establishment or erosion control), it may be appropriate to use introduced, non-aggressive grasses and forbs.

Contact the Natural Resources Conservation Service or Colorado State University Cooperative Extension for seeding recommendations. The *Native Plant Revegetation Guide for Colorado*, published by the Colorado State Parks Natural Areas Program, is an excellent guide for native plant reseeding.

4.06 STRATEGIES:

- Study all vegetation in the area and surrounding areas.
- Preserve plant species native to Colorado.
- Test the soil for pH balance. Try to retain and utilize as much on-site topsoil as possible.
- Select a predominant species that is appropriate to the site. Then choose a few complimentary species to provide a balanced plant community.
- Choose plants that are healthy, vigorous and pest free.
- Use weed-free seeds. Use non-hybrid seeds. Avoid commercial seed packets containing exotic plant species.
- Choose plants that are horticultural appropriate, i.e. plant species that are adaptable to climate, soil and topographical conditions of the designated area.
- Consider the use of water, its availability and the vegetative requirements.
- To landscape for wildlife, choose native plants that provide cover, forage, browse, seeds for birds and rodents, and shade.

- Be site-specific; revegetation strategies may vary for small lots, farms, ranches or construction sites.
- Establish a vegetative cover that is diverse, effective and long lasting, capable of self-regeneration.
- Stabilize the surface.

Section V
Reclamation Standards

5.01 Site stability

A. The reclaimed area shall be stable and exhibit none of the following characteristics:

1. Large rills or gullies.
2. Perceptible soil movement or head cutting in drainages.
3. Slope instability on or adjacent to the reclaimed area.

B. Slopes shall be stabilized using appropriate reshaping and earthwork measures, including proper placement of soils and other materials.

5.02 Soil Management

Topsoil management shall be salvaged from areas to be disturbed and managed for later use in reclamation.

5.03 Erosion Prevention

The surface area disturbed at any one time during the development of a project shall be kept to the minimum necessary and the disturbed areas reclaimed within ninety days to prevent unnecessary or undue degradation resulting from erosion.

A. The soil surface must be stable and have adequate surface roughness to reduce run-off, capture rainfall and snow melt, and allow for revegetation.

B. Application of certified noxious weed free mulch or erosion netting may be necessary to reduce soil movement, retain soil moisture, and promote revegetation.

C. Soil conservation measures, including surface manipulation, reduction in slope angle, revegetation, and water management techniques, shall be used.

D. Sediment retention structures or devices shall be located as close to the source of the sediment generating activities as possible to increase their effectiveness and reduce environmental impacts.

5.04 Revegetation

When the final landform is achieved, the surface shall be stabilized by vegetation or other means to reduce further soil erosion from wind or water, provide forage and cover, and reduce visual impacts. Specific criteria for evaluating revegetation success must be site-specific and included as a part of the reclamation plan.

A. Vegetation production, species diversity, and cover, shall support the post-disturbance land use. Areas where the post-disturbance land use does not include lawns, gardens, and flower beds; shall approximate the surrounding undisturbed area or be revegetate to a desired plant community with a composition of species and plant cover typical to that site.

B. The vegetation shall stabilize the site and support the planned post-disturbance land use, provide natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:

    1. Using certified noxious weed free seed.
    2. Successful onsite establishment of the species included in the planting Mixture and/or other desirable species.
    3. Evidence of vegetation reproduction, either spreading by rhizomatous Species or seed reproduction.
    4. Evidence of overall site stability and sustainability.

C. The revegetation plan shall provide for the greatest probability of success in plant establishment and vegetation development by considering environmental factors such as seasonal patterns of precipitation, temperature and wind; soil texture and fertility; slope stability; and direction of slope faces.

D. To insure the establishment of a diverse and long-lasting vegetative cover, the permittee shall employ appropriate techniques of site preparation and protection. Species diversity should be selected for long-term land uses and to provide for a reduction in visual contrast.

E. Where revegetation is to be used, a diversity of vegetation species shall be used to establish a resilient, self-perpetuating ecosystem capable of supporting the post-disturbance land use. Species planted shall include those that will provide for quick soil stabilization, provide litter and nutrients for soil building and are self-renewing.

F. Integrated Weed Management (IWM) methods shall be employed for all noxious weed species on the RFTA List. Weed management methods shall be used whenever the inhabitation of the reclaimed area by noxious weeds threaten nearby areas.

G. Where revegetation is impractical or inconsistent with the surrounding undisturbed areas, other forms of surface stabilization shall be used.

SECTION VI

APPENDICES

Resource Directory

Agencies

6.01 Government & Other Organizations

Bureau of Land Management
Glenwood Springs Field Office
PO Box 1009
Glenwood Springs, CO 81602
(970) 947-2800

Garfield County Vegatation Management
P.O. Box 1112
Rifle Co. 81605
(970) 625-3969

Colorado Department of Agriculture
Eric Lane, State Weed Coordinator
700 Kipling St., Suite 4000
Lakewood, CO 80215-5894
(303) 239-4182

Colorado Department of Ag. Insectary
P.O. Box 400
Palisade, CO 81526
(970) 464-7916

Colorado Division of Wildlife
50633 US Hwy 6 & 24
Glenwood Springs, CO 81601
(970) 945-7228

Colorado Department of Transportation
226 S. 6th St., Room 317
Grand Junction, CO 81501
(970) 248-7361

Colorado State University
Extension Weed Science Specialist
116 Weed Research
Ft. Collins CO 80523
(970) 491-7568

Colorado State University
Cooperative Extension
PO Box 1112
Rifle, CO 81650
(970) 625-3969

Colorado Weed Management Association
P.O. Box 1910
Granby, CO 80446-1910
(970) 887-1228

Eagle County Weed Department
PO Box 239
Eagle, CO 81631
(970) 328-8778

PO Box 1302
Glenwood Springs, CO 81601
(970) 945-5494

Pitkin County Land Management
76 Service Center Road
Aspen, CO 81611
(970) 920-5214

Roaring Fork Railroad Holding Authority
PO Box 1270
Carbondale, CO 81623
(970) 704-9282

White River National Forest
900 Grand Ave.
Glenwood Springs, CO 81601
(970) 945-2521

6.02 *Internet Websites*

Colorado Weed Management Association
http://www.fortnet.org/CWMA

Native Plant Conservation Initiative
http://www.nature.nps.gov/npci/

Bureau of Land Management
http://www.blm.gov./education.html

National Wildlife Federation
http://www.nwf.org

Pesticide Information
http://164.159.187.239?NWRSFiles/Internet resources/Pesticide.html

Noxious Weeds, Exotic and Invasive Plant Management Resources
http://164.159.187.239/NWRSFiles/InternetResources/Weeds.html

Weed Science Society of America
http://piked2.agn.uic.edu/wssa/

Colorado Natural Heritage Program
http://colostate.edu/Orgs/CNHP

Colorado Natural Areas Program
http://elbert.state.co.us/cnap

Chemical Label Information
http://greenbook.net

6.03 BOOKS

Weeds of the West
University of Wyoming Bulletin Room
(307) 766-2115

Colorado Flora, Western Slope
William Weber and Ronald Wittman
Available in most bookstores

Native Plant Revegetation Guide for Colorado
Colorado Natural Areas Program

Trees and Shrubs of Colorado
By: Jack Carter
Available in most bookstores

Troublesome Weeds of the Rocky Mountain West
Colorado Weed Management Assoc. (303) 866-3437

Biology and Management of Noxious Rangeland Weeds
University of Arizona Press
1230 N. Park Ave. Suite 102
Tucson, AZ 86719
1-800-426-3797