INTRODUCTION

In the planning area, invasive species (i.e., noxious weeds) are currently managed using an invasive species action plan. The plan lists prevention practices, early detection and rapid response strategies, priority inventory and treatment areas, and covers a 3-year timeframe. All resource areas participate in invasive species management.

Invasive species move across jurisdictional boundaries and property lines; therefore DLMP/DEIS alternative implementation would involve close coordination and partnerships with local, State, Native American tribal, and other Federal agencies, as well as with interested organizations and individuals.

LEGAL AND ADMINISTRATIVE FRAMEWORK

LAWS

- ***Granger-Thye Act of 1950 Section 12(4)***: This act authorizes the USFS to spend grazing fee receipts on noxious weed-control activities.
- ***Federal Land Policy and Management Act of 1976***: This is the BLM's "Organic Act." The act formally established the multiple-use mission of the agency. Pertinent sections of the act relating to rangeland management can be found in Sections 102, 201, 202, 302-304, 307, 309, 310, and 401-403. Various sections of the act also pertain to USFS management.
- ***Carson-Foley Act of 1968***: This act prescribes coordinated noxious-weed management activities on Federal lands between States and Federal agencies.
- ***Federal Noxious Weed Act of 1974, Section 9***: This act authorizes the USFS and the BLM to cooperate with States and other political entities in order to eradicate, suppress, control, or prevent or retard the spread of any noxious weed.
- ***Public Rangelands Improvement Act of 1978***: This act directs the USFS and the BLM to manage, maintain, and improve the condition of public lands so that they become as productive as feasible.
- ***Plant Protection Act of 2000***: This act provides the authority to the Secretary of Agriculture to regulate and control the spread of noxious-weed materials for interstate commerce.
- ***Healthy Forests Restoration Act of 2003***: This act directs the USFS and the BLM to conduct hazardous fuels-reduction projects on USFS lands and BLM lands. The aim is to protect communities, watersheds, and certain other at-risk lands from catastrophic wildfire; to enhance efforts to protect watersheds and address threats to forest and rangeland health (including catastrophic wildfire) across the landscape; and for other purposes.
- ***Wilderness Act of September 3, 1964, Section 2(c)***: This act describes Wilderness as a place that is protected in order to preserve its natural conditions.
- ***Colorado Noxious Weed Act of 2003 (Title 35 Article 5.5)***: The act provides direction on noxious-weed management on lands within the State of Colorado.

- ***Federal Insecticide, Fungicide, and Rodenticide Act of 1972***: This is the authority for the registration, distribution, and sale of pesticides, and is administered by the Environmental Protection Agency (EPA) and State environmental agencies.
- ***Cooperative Forestry Assistance Act of 1978, as amended***: This is the authority for assisting and advising States and private landowners in the use of pesticides.
- ***Resource Conservation and Recovery Act of 1976***: This regulates the disposal of toxic wastes, including the disposal of unused herbicides.
- ***Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended***: In brief, this law addresses the clean-up of hazardous wastes.

EXECUTIVE ORDERS

- ***Executive Order 13112***: This EO directs Federal agencies to prevent the introduction of invasive species and to provide for their control, as well as to minimize the economic, ecological, and human health impacts that invasive species cause.

REGULATIONS AND POLICIES

- ***Management and Control of Noxious Plants on the San Juan/Rio Grande National Forests, Decision Notice and FONSI 1996***: Based on an environmental analysis, this directs the Forest Supervisor to select an integrated management approach in order to manage noxious weeds on the national forests.
- ***Vegetation Treatment on BLM lands in the 13 Western States (FEIS 1991)***: This provides national direction for vegetation management on public lands. The document also analyzes pesticide uses and prescribes approved pesticides that can be used on public lands.
- ***Weeds-Revised Integrated Weed Management in the San Juan Field Office (CO-038-99-05)***: This environmental assessment (EA) recommends an integrated approach to noxious-weed management on BLM -administered lands.
- ***FSM 2080***: This directs the USFS to integrate a management approach of managing noxious weeds.
- ***BLM Manual 9015***: This directs the BLM to integrate a management approach for managing noxious weeds.
- ***State Noxious Weed List (8 CCR 1203-10)***: The Colorado noxious-weed list can be found at "Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act."

AFFECTED ENVIRONMENT

Existing Conditions and Trends

A species is considered invasive if it is non-native to the ecosystem under consideration, and its introduction causes, or is likely to cause, economic or environmental harm or harm to human health (EO 13112). Weeds are legally designated as noxious by the Secretaries of Interior or Agriculture or by States Department of Agriculture. These noxious species usually result in significant crop damage, threaten livestock or human heath, and/or are particularly aggressive and difficult to manage.

The Colorado Department of Agriculture has three noxious weed designations: Class A (which are those weeds targeted for eradication within the State); Class B (which are those weeds that are to be managed for containment); and Class C (which are those weeds where optional, more intensive management can be undertaken by local organizations, such as by counties). There are 18 Class A, 39 Class B, and 14 Class C noxious weed species, for a total of 71 noxious weed species.

The SJPLC has formal cooperative agreements with five of seven counties to treat, monitor, and inventory noxious weeds. In addition, SJPLC has partnerships with other local entities (including the Dolores River Tamarisk Action Group) to support tamarisk management.

Noxious weeds within the Weminuche, Lizard Head, and South San Juan Wilderness Areas are managed using an integrated approach. In 2004, the Regional Forester, Rocky Mountain Region, approved and extended a 2001 decision that included the limited use of herbicides in order to spot treat infestations of Canada thistle, yellow toadflax, musk thistle, and houndstongue. The related analysis also recommended continuing inventory and monitoring efforts in Wilderness Areas.

Table 3.11.1 displays noxious weed species and the State classification on SJPLC-administered lands.

Table 3.11.1 – Noxious Weed Inventory on Lands Administered by SJPLC*

NOXIOUS WEED SPECIES	USFS	BLM	TOTAL (USFS-BLM)	CANYONS OF THE ANCIENTS (MONUMENT)	TOTAL (USFS-BLM-MONUMENT)
Canada thistle	30,800	178	30,978	283	31,261
Musk thistle	11,531	859	12,390	268	12,658
Russian knapweed	983	1,866	2,849	709	3,558
Houndstongue	3,071	<1	3,071	0	3,071
Yellow toadflax	1,152	<1	1,152	0	1,152
Downy brome	0	462	462	0	462
Oxeye daisy	652	0	652	0	652
Salt cedar	<1	87	87	545	632
Leafy spurge	237	0	237	0	237
Hoary cress	157	49	206	3	209
Spotted knapweed	184	3	187	0	187
Dalmatian toadflax	3	14	17	79	96
Russian thistle	0	0	0	91	91
Mountain tarweed	76	0	76	0	76
Bull thistle	80	4	84	0	84
Chicory	66	0	66	0	66
Halogeton	0	12	12	0	12
Perennial pepperweed	0	0	0	9	9
Jointed goatgrass	0	1	1	0	1
Common mullein	7	0	7	0	7
Sulphur Cinquefoil	<1	0	<1	0	<1
Diffuse knapweed	<1	0	<1	0	<1
Scotch thistle	<1	0	<1	0	<1
Corn/Scentless chamomile	<1	0	<1	0	<1
Unknown	<1	49	49	<1	49
TOTALS	***48,999***	***3,584***	***52,583***	***1,987***	***54,570***

* Data from 2000-2007. Other locations may be on maps or aerial photos, but have not been ground verified to be included in this inventory.

Table 3.11.2 displays potential invaders that are on a "watch list." The intent is to eradicate these species, if found on public lands.

Table 3.11.2 – Potential Noxious Weed Invaders on Lands Administered by SJPLC

SPECIES	COMMENTS
Dyers woad	Approximately 1 acre. Found along Highway 491, 1 mile west of Dove Creek. List A noxious weed species.
Camelthorn	Found in SE San Juan County, UT in the Montezuma Creek area. List A noxious weed species.
Yellow starthistle	Approximately 20 acres. Found in Mesa and Montrose Counties. List A noxious weed species.
African rue	Acreage greater than 50 acres. Found in the Farmington, NM area. List A noxious weed species.
Squarrose knapweed	List A species. Found in Utah.
Orange hawkweed	Found in NE Colorado. List A species.
Purple loosestrife	Found along San Miguel River. List A species.
Medusahead	Weed found in NV and UT. List A species.
Bouncing bet	List C species. Found on private lands in Archuleta County, C.R. 250 – East Animas Rd. and around utility boxes.
Giant salvinia	List A species.; aquatic weed.
Hydrilla	List A species; aquatic weed.
Eurasian watermilfoil	List B species; aquatic weed.

As part of an Invasive Species Action Plan, the SJPLC has developed a treatment priority list covering the next 3 years. This plan would be updated and reviewed every 3 years. Table 3.11.3 displays these priority species.

Table 3.11.3 – Priority Noxious Weed Species Scheduled for Treatment Through 2007

SPECIES	Management Objective	Colorado Noxious Weed List Status	Comments
Scentless chamomile	Eradication	List B - Containment	Less than 1 acre. Found on the Columbine office in the vicinity of the U.S. Highway 550/Elbert Creek intersection, within the Missionary Ridge Wildfire, and the Pine River Trailhead. Found on Four Mile Road, Echo Canyon Road, Blanco Basin, and Price Lakes in the Pagosa area.
Dames Rocket	Containment		Less than 1 acre. Contained on private lands around Vallecito Lake.
Dalmatian toadflax	Eradication	List B - Containment	Approximately 240 acres. Good candidate for biological control. Eradication is reasonable as the pest has only been found in isolated areas near Dolores.
Houndstongue	Containment (Columbine, Pagosa) Eradication (Dolores)	List B - Containment	Approximately 3,132 acres. Found along the old railroad grade, and associated meadows, on the railroad and La Plata allotments on the Dolores office. Contain the infestation east of Cherry Creek and eradicate it west of Cherry Creek on the Dolores unit. Contain the infestation within the Piedra area above the Piedra Road Bridge, and within the Piedra River drainage below the Piedra Road Bridge on the Pagosa unit.
Russian knapweed	Containment (Dolores) Eradication (Pagosa)	List B - Containment	Approximately 7,685 acre. Eradicate infestations located in the Lower Valle Seco, First Fork Trailhead, and Horse Creek on the Pagosa unit. Contain on BLM and the Monument.
Spotted knapweed	Eradication	List B - Containment	Approximately 167 acres. Refer to part 4.7.4 of the State Noxious Weed Act for specific spotted knapweed management requirements. This pest should be targeted for eradication outside of specific portions of La Plata County (see part 4.7.6 exhibit 8). Found in isolated locations within the Missionary Ridge Wildfire, Bear Creek (Columbine RD) McPhee campground, Dolores office site, House Creek CG, McPhee Park,, Gordon Creek Gravel Pit, Devil Mtn. Res., Newtjack Rd., and along the WAPA ROWs.
Leafy spurge	Eradication	List B - Containment	Approximately 281 acres. Eradication is a reasonable goal for the small infestations located on the Dolores office, and those infestations located in Martinez Canyon and Newtjack and Piedra roads on the Pagosa unit.
Oxeye daisy	Eradication	List B - Containment	Approximately 620 acres. Containment roadside ROWs, in order to reduce the chance of invasion into native systems.
Hoary cress	Containment	List B - Containment	Approximately 231 acres. Containment within roadside ROWs in order to reduce the chance of invasion into native systems.
Tamarisk	Containment (BLM, Monument) Eradication (USFS)	List B - Containment	Approximately 1,041 acres. Refer to part 4.7.5 of the State Noxious Weed Act for specific tamarisk management requirements. Yellow Jacket Canyon is a priority treatment area on the Monument.
Yellow toadflax	Containment	List B - Containment	Approximately 1,182 acres. Potential candidate for biological control. Species should be targeted for eradication in Scotch Creek, Cherry Creek, and Box Canyon Reservoir areas on the Dolores office.
Puncturevine	Eradication	List C - Optional Management	Approximately 5 acres. Eradicate in Deep Canyon and Kenny Flats Road on the Pagosa Road.
Diffuse knapweed	Eradication	List B - Containment	Approximately 1 acre. Found at McPhee boat ramp parking lot. Also found at the intersection of Highway 160 and Mesa Verde N.P. entrance, and in isolated spots along Highway 145 between Cortez and Dolores.
Scotch thistle	Eradication	List B - Containment	Approximately 1 acre. This weed is almost naturalized along the Animas River.
Musk thistle	Containment	List B - Containment	Annually treat priority areas.
Bull thistle	Containment	List B - Containment	Annually treat priority areas.
Canada thistle	Containment	List B - Containment	Annually treat priority areas.
Black henbane	Eradication	List B - Containment	Approximately 1 acre. Mud Springs, Haflin Creek allotment. Refer to part 4.7.6 of the State Noxious Weed Act for specific management requirements.
Downy brome or cheatgrass	Containment	List C - Optional Management	Treat high priority areas as needed. Benefiting function should help fund project.
Chinese Clematis	Eradication	List B - Containment	Approximately 10 acres. Found along Highway 550 about 10 miles north of Durango.

The 1985 BLM San Juan/San Miguel RMP does not address the issue of invasive species. The current USFS land and resource management plan provides the following invasive species guidance as shown under general forest direction (P. III-34):

- Treat noxious weeds in the following priority:
- Leafy spurge, and Russian and spotted knapweed.
- Invasion of new plant species classified as noxious farm weeds.
- Infestations in new areas.
- Expansion of existing infestations of Canada and musk thistle, and other noxious farm weeds.
- Reduce acreage of current infestations.

This direction has generally been followed; however, it is important to note that at the time both plans were written, invasive species management (i.e., noxious weed management) was believed to be primarily a range management problem.

New trends and needs have emerged, including:

- ***The Missionary Ridge Wildfire of 2002***: This fire burned approximately 70,000 acres. The resulting noxious-weed population doubled to approximately 6,200 acres. In spite of a 4-year contract to inventory and treat noxious weeds within the fire area, successful long-term management may continue to require large amounts of capital and labor.
- ***Hazardous fuels program***: In spite of increased awareness regarding limiting the spread of noxious weeds in the planning area, ground disturbance may continue to provide a seedbed for new noxious weed infestations.
- ***Increased awareness***: As the result of internal and external outreach and education, noxious-weed impacts have evolved from a range management problem to a community problem. This awareness has produced cooperation between the CDOW and Federal land management agencies, with the goal of restricting the use of uncertified hay on public lands within the State.
- ***Integrated pest management***: Integrated pest management (e.g., cultural, mechanical, chemical, and biological control), as opposed to strictly herbicide treatment, has evolved over time.
- ***New noxious weeds***: New noxious species are poised to invade public lands. These are described in Table 3.11.2 above. There was no analysis and direction regarding these species in the older land and resource management plans.
- ***Increased legislative support to manage noxious weeds***: Several new laws, EOs, and initiatives have all resulted in raising awareness about invasive species.
- ***Improved development and implementation of standard noxious weed mitigation measures in contracts and other agreements***: Noxious weed assessments are produced for every project and supporting NEPA analysis in order to outline the necessary mitigation measures for a proposed action on public lands.
- ***Improved biological control methods***: There are approved biological control agents for leafy spurge, Canada thistle, musk thistle, Dalmatian, and yellow toadflax.

- ***Improved herbicide formulations***: Over time, herbicide formulations have improved. This has resulted in less overall herbicides being used; however, control success rates have improved.
- ***Drought***: The on-going drought has the potential to permanently change rangeland vegetation composition to favor invasive species (including cheatgrass). Cheatgrass is prevalent in lower-elevation rangelands; however, it has increased its density in those areas, and is now invading higher-elevation lands.
- ***Cheatgrass invasion***: The invasion of cheatgrass has the potential to alter public land forage quality and seasonal availability. It also has the potential to increase fire frequency beyond the range of natural variation. This may, in turn, adversely impact wildlife habitat and water quality, among other resources.

ENVIRONMENTAL CONSEQUENCES

DIRECT AND INDIRECT IMPACTS

Noxious weeds, and other invasive plant species, establish as a result of ground disturbance. They also establish where a seed source is present. Weeds are introduced and spread in many ways (including by people, wildlife, vehicles, wind, water, and fire). Noxious weeds and other invasive species can impact water quality, wildlife habitat, fisheries, forage production, and soil productivity. Invasive species can also displace native species. An increasing local area population, as well as an increase in visitors, may result in an increase of recreational use of public lands. This increase in recreational use may be the greatest cause of potential impacts.

Invasive plant management on SJPLC-administered lands is coordinated through an Invasive Species Action Plan. The plan covers a 3-year period, and is updated and/or amended annually. Additionally, partnership agreements are in place for most local counties, and with Western Area Power Administration (WAPA). There is a need to form a coordinated weed management area that encompasses local political boundaries in order to more efficiently manage invasive species.

DLMP/DEIS Alternatives: Alternatives that allow for the most ground-disturbing activities may provide the most opportunities for invasive species to establish and spread. Alternative A would have the greatest potential to introduce and spread invasive species (as measured in relation to the number of acres proposed within MA 3s and 5). Alternative A would be followed by Alternatives D, B, and C. Mineral development ground-disturbing activities would continue even should no additional oil and gas leasing occur. BMPs, mitigation measures, and public education and awareness programs would continue to be used in order to limit the introduction and spread of invasive species. Impacts would continue to be long-term and moderate. Using early detection and rapid response strategies, most invasive species should be contained. Sites having a potential for cheatgrass invasion would be more difficult, in terms of management challenges. This is because cheatgrass appears to have the ability to develop local adaptive survival strategies that allow it to successfully out-compete native vegetation. In addition, there is always the risk that a new invasive species may invade, but go undetected for some time. Should this scenario occur, then eradication of the new invader would be difficult to achieve as a new population may have established in one or more areas.

CUMULATIVE EFFECTS

Noxious weeds, and other invasive species, were brought into the area from actions such as homesteading, vehicles, mineral development, timber sales, watershed improvement projects, and purposeful introductions. With the introduction of invasive species, there were adverse impacts to wildlife habitat and native species, decreased rangeland productivity, and watershed health. Invasive forage species, such as crested wheatgrass and smooth brome, were introduced in order to retard soil erosion and to provide forage and hay for livestock. Legislative efforts to control the spread of noxious weeds began to control livestock losses from poisonous plant consumption. Budgets were limited and noxious weed control was usually funded out of the rangeland management program. Common weeds (including Canada and musk thistle, knapweeds, leafy spurge, toadflaxes, whitetop, cheatgrass, and tamarisk) were all introduced over the last 120 years or so.

In spite of increased acres being treated, noxious weed populations are continuing to increase. There are many causes (including increased wildfires, prolonged drought, increased vehicle use to access public lands, increased oil and gas activity, increased recreation activities, increased off-road vehicle use, and an increased number of visitors coming from different parts of the country) contributing to the spread of noxious weeds and other invasive species. Noxious weeds will continue to spread even if there no additional oil and gas leasing occurs. The current noxious weed inventory for the planning area shows approximately 52,583 acres of noxious weeds infesting SJPLC-administered lands (SJNF 2007).

Legislation has legally restricted the introduction and spread of noxious weeds and invasive species. Laws (including the Federal Land Policy and Management Act of 1976, the Federal Noxious Weed Act of 1974, and the Plant Protection Act of 2000) have all benefited invasive species management. In addition, local, State, and Federal partnerships have proven valuable to invasive species management. Educational outreach by local, State, and Federal entities (as well as associated budgets) have increased dramatically over time.
Invasive wildlife species include the English sparrow, European starling, and the bullfrog, as well as desirable introduced species like the mountain goat, moose, and chuckar partridge. Numerous exotic fish species have been introduced into the waters of the San Juan River and the upper Colorado River Basin. Some of these introductions have significantly impacted native fishes.

The common noxious weeds and invasive wildlife and fish species described above are still impacting public lands. Other newer invasive species have been found on public lands within the last 5 years (including dyers woad, black henbane, sulfur cinquefoil, and dames rocket). Additional invasive species now found within the planning area include whirling disease and the Eurasian collared dove.

Noxious weeds will continue to spread. The biennial thistles, Russian knapweed, whitetop, houndstongue, and Canada thistle, may become naturalized. New invasive species may invade local public lands. Some of these species may include camelthorn, yellow starthistle, African rue, orange hawkweed, medusahead, purple loosestrife, and the painted turtle. Newly introduced invasive species would be the highest priority for treatment, followed by Colorado Class A and B noxious weeds, respectively.

Whirling disease will spread through expanded vehicle access across the planning area. Biological control practices should become more widely used as additional control agents are developed and tested on more target species.

Legislation may continue to be enacted in order to limit the introduction and spread of invasive species. Cooperative efforts between local, State, and Federal entities would continue to be strengthened. Public awareness regarding invasive species impacts will continue to improve.

Treatment costs would continue to increase; therefore, control and containment along more easily accessible areas (including roads, campgrounds, and facilities) should occur first. However, the spread of noxious weeds along trails and other less-accessible areas would continue to be more expensive to control (as horses and foot traffic would be used to access more remote areas). Overall long-term costs, however, may be reduced if biological control methods become more widely used, and become more successful.

In view of increasing acres of WFU, as well as the anticipated implementation of new BLM polices (including the Programmatic Environmental Report: Vegetation Treatments on Bureau of Land Management Lands in 17 Western States and the Programmatic EIS: Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States (BLM 2005)) it may be necessary to review, and perhaps revise, current BMPs and local project decisions addressing vegetation management. This may require the SJPLC to evaluate site-specific management practices on public lands that address all aspects of vegetation management.