PREVENTION

Preventing introduction and spread of weeds is one objective of the integrated weed management program on the Forest. Having knowledge of weed spread vectors and conditions in which weed establishment is most vulnerable can help in evaluating spread risk. Project risk assessments evaluate the risk of weed spread due to any proposed activity. Best management practices (BMPs) help in project design and decisions to help minimize spread or new establishment.

WEED SPREAD VECTORS

Weeds are spread by various transport vectors.

- **Weeds can be spread by vehicles.** The source of many weed infestations has been traced to roads, trails, parking lots, gravel pits, railroads, and other travel corridors. When driven through a weed-infested area, weed seeds may become lodged between the tire tread, in a winch, and in other cracks and crevices on the chassis of a vehicle. Such seeds may become dislodged hundreds of miles away, infesting new areas. Most aquatic weeds are spread by human activities, generally through contamination of boats and nets. Weed seed can also be transported in gravel pit material.
- **Weeds can be spread by humans and animals.** Many weed seeds can pass through an animal's digestive tract and still grow. Pack animals that have eaten contaminated feed can deposit weed seeds throughout backcountry areas. Birds and wildlife can move weed seed to even the most remote locations. Livestock, pets, and humans can carry burred seed that cling onto fur or fabric, such as houndstongue seed. Weed seed infested hay, pellets, or straw transported into trailheads or camping sites are another source of spread. Weeds can be spread by those who pick them for floral arrangements. New weed infestations can be established when seeds fall off transported flowers. Some weeds can develop roots and produce new plants directly from plant parts, even after weeks of use as decorations.
- **Weeds can be spread by water and wind.** Many weed seeds have mechanisms allowing to be carried by the wind. Surface water run-off or water naturally flooding and receding in stream systems can also carry weed seed.

WEED SUSCEPTIBILITY

Environmental and land use conditions determine the potential for a weed to establish and survive in a particular setting. Some of the following factors are important to the suitability of land to support a weed:

- **Elevation** -- certain weed species can grow at various elevations, but often not higher than a certain value. This factor limits the potential for a weed to exist in elevation ranges that it is not typically found.
- **Slope --** weeds, as with most plants, are limited by the slope angle on which they can establish and flourish. This factor limits the potential for a weed to exist in steeper slope areas.
- **Aspect** -- weeds are more likely to establish on ground facing in certain directions. Most weeds seem to flourish on more south-facing slopes. This, of course, depends on the species.
- **Land Cover** -- the type of vegetation predominately occupying an area can determine the ability for a weed species to establish. Some land cover types are more susceptible to weed infestations.
- **Soil pH** -- each weed species can grow in soils with a certain pH range. Any soils with a pH outside that range will often limit the growth of that species.
- **Soil Texture** -- as with pH, certain species can grow in different soil types. This factor limits the potential for a weed to grow in certain soil types.
- **Precipitation** -- if a weed needs a lot of moisture to survive, there needs to be an adequate amount of annual precipitation in an area for that weed. This factor determines where a weed can grow based on the precipitation regime. Some species favor arid climates, whereas other species need more moisture.
- **Distance from Water Sources** -- similar to precipitation, this factor limits the places some species can flourish based on the availability of water. A more water-dependent species may need to be located closer to a constant water source in order to survive and invade an area.
- **Distance from Disturbances** -- weed species often spread as a result of disturbance in the area, such as wildfire or controlled burn areas, roads, trails, pipeline construction or oil and gas development. In fact, some species will spread only because of disturbance in the area.

LEVEL OF RISK

To assist with the following Forest Service project risk assessment protocol, the following weed susceptibility assessment may be helpful in determining the level of risk depending upon the environmental setting and invasiveness of the weed.

APPENDIX D
PREVENTION
PROJECT RISK ASSESSMENTS AND BEST MANAGEMENT PRACTICES

A risk assessment was completed for several weeds occurring in the USFS Northern Region, East of the Continental Divide (http://www.fs.fed.us/r1/cohesive_strategy/datafr.htm). Data, literature sources, and expert opinion were used to determine if a species could become established in each potential natural vegetation type. Expert opinion came from a panel of botanists and ecologists who were convened to review the findings from data and literature.

The risk assessment used a three-tiered approach to access risk to native plant communities from exotic plant species. The attached species specific matrix can be used to help assess the project area's susceptibility and level of threat for spread. The susceptibility of areas to species' establishment, the level of threat to susceptible areas, and the probability of exposure of each site to plant propagules affecting dispersal can be determined. Native plant communities are represented by various biophysical settings and modeled as 34 potential natural vegetation groups. Susceptibility, threat, and probability of exposure can be combined to model the degree of risk across a project area from some of the most threatening exotic species. Proposed disturbance information can be combined with potential natural vegetation (PNV) data to identify which areas are susceptible to each exotic plant species analyzed.

Susceptibility refers to the vulnerability of a native plant community to colonization and establishment of an exotic species. Susceptibility is rated using a categorical system where each combination of a species and PNV is coded with one of the following:

- **U – Unknown:** Susceptibility of this PNV to the species is unknown
- **C – Closed:** The species generally does not occur within this PNV under any condition
- **I – Invasive:** The species is invasive in undisturbed conditions within this PNV. If a species is rated as "I", the assumption is that it would also invade with disturbance.
- **D – Disturbance:** The species occurs in this PNV where there has been evidence of recent disturbance.

Threat refers to the degree of change to the structure, composition, or function of a native community from an exotic species. Threat is displayed using a qualitative ranking of three classes: low, high, and none. Factors taken into consideration for classifying threat are as follows:

- **L – Low Threat:** Species can become established; however, they cannot compete well with native vegetation, even in disturbed settings. Species with low threat never increase substantially in cover without the aid of severe site disturbance. Even in cases of moderate to mild disturbance events (e.g. low intensity fires, moderate grazing) native plants still are able to compete successfully.
- **H – High Threat**: Species are rated as having high threat if once established they can compete successfully with native vegetation. These changes would have to be significant enough to where the function of the plant community is substantially altered. These changes would include alteration in natural pathways of succession, a change in the natural fire regime, and/or significant changes to the composition and canopy cover of native plant species.
- **N – No Threat:** A species can only be assigned no threat to a PNV if it is closed (C) to that PNV.
- **U – Threat Unknown**

Probability of exposure / transport can be assessed by combining various factors that are considered to be influential on the probability that the particular area would be exposed to seeds of the species being evaluated. Factors include, but are not limited to, distance to nearest population of known species occurrence; road density classes; distance to primary/secondary federal or state highway or other high use road systems; distance to and level of other spread vectors. The exposure / transport factors added together, and based upon the final value, can give a probability of exposure rating of low, moderate, or high.

Risk: Data from the three input sources (susceptibility, threat, and exposure) can be used with the following rule set to determine the level of risk to a site from each species.

Susceptibility	Threat	Exposure	= Risk
Not susceptible	None	Any level	No risk
Susceptible	Low	Any level	Low
Susceptible	Unknown	Any level	Unknown
Susceptible	High	Low	Moderate
Susceptible	High	Moderate	High
Susceptible	High	High	High
Unknown	Unknown	Any level	Unknown

SUSCEPTIBILITY / THREATS MATRIX, USFS NORTHERN REGION EAST OF THE CONTINENTAL DIVIDE

Species	Rocky Mtn Juniper	Limber Pine	Ponderosa Pine	Lodgepole	Douglas-fir 1	Douglas-fir 2w	Douglas-fir 3w	Spruce	Subalpine Fir 1e	Subalpine Fir 2e	Whitebark Pine	rc_xeric	Riparian grass - wet	Riparian grass - dry	Riparian shrub	Riparian deciduous	Aspen	Green Ash	androp	Dry grass	Idaho fescue	Western wheatgrass	Salt shrub	Skunkbush	Dry shrub	Shrubby cinquefoil	Big sagebrush	Alpine	Water	Mesic shrub e	rc_sub	rc_mes	Rock
Russian knapweed	U ?	U ?	D H	C N	D H	C N	C N	C N	C N	C N	C N	D ?	D H	D H	D H	D H	U ?	U ?	U ?	D H	D ?	D H	U ?	U ?	D ?	U ?	D L	C N	C N	D H	C N	C N	C N
Japanese brome	IL	IL	IL	C N	IL	D L	C N	C N	C N	C N	C N	IL	C N	C N	C N	IL	D L	D L	IL	IL & D H	IL & D H	IL	IL	IL	IL	C N	IL	C N	C N	D L	C N	C N	C N
downy brome	IL	IL	I H	C N	I H	D L	C N	C N	C N	C N	C N	IL	C N	D L	C N	IL	D L	D L	IL	I H	I H	IL	IL	IL	I H	C N	IL	C N	C N	D L	C N	C N	C N
hoary cress (whitetop)	C N	U ?	U ?	U ?	U ?	U ?	U ?	U ?	U ?	C N	C N	U ?	C N	D H	D L	U ?	U ?	U ?	U ?	IL	D L	I H	IL	U ?	D L	D L	D H	C N	U ?	U ?	U ?	U ?	C N
spotted knapweed	I H	I H	I H	D L	I H	D L	D L	D L	D L	D L	C N	I H	C N	D L	D L	D H	D H	IL	I H	I H	I H	I H	I H	I H	I H	I H	I H	C N	C N	I H	D L	D L	C N
diffuse knapweed	I H	U ?	D H	U ?	D H	D H	D H	C N	C N	C N	C N	D H	C N	C N	D L	D L	U ?	U ?	U ?	I H	D H	U ?	U ?	I H	I H	U ?	D H	C N	C N	U ?	C N	C N	C N
yellow starthistle	U ?	U ?	D H	C N	D L	C N	D L	C N	C N	C N	C N	D H	C N	C N	C N	C N	U ?	U ?	U ?	I H	I H	U ?	U ?	U ?	I H	C N	IL & D H	C N	C N	D L	C N	C N	C N
rush skeletonweed	U ?	U ?	D H	D L	D ?	D L	D L	D L	D L	D L	C N	D L	U ?	U ?	D L	D L	D ?	U ?	U ?	D H	D H	U ?	U ?	U ?	D H	U ?	D H	C N	C N	U ?	D L	D L	C N
oxeye daisy																																	
Canada thistle	C N	D L	D L	D L	D L	D L	D L	D L	D L	D L	D L	D L	C N	D H	D H	D L	D H	D L	D L	C N	D L	D L	U ?	C N	D L	D L	D L	D L	C N	D H	D L	D L	C N
field bindweed																																	
common crupina	U ?	U ?	D H	C N	D L	U ?	U ?	C N	C N	C N	C N	U ?	C N	C N	C N	C N	C N	U ?	U ?	D L	D H	U ?	U ?	U ?	D L	U ?	D L	C N	C N	U ?	C N	C N	C N
houndstongue	U ?	D L	D ?	U ?	IL	D L	D ?	D ?	D L	C N	C N	U ?	C N	D H	D H	IL	D L	U ?	U ?	D L	D L	D L	C N	U ?	C N	D L	D L	C N	C N	IL	U ?	U ?	C N
common teasel	U ?	U ?	D L	C N	D L	D L	U ?	C N	C N	C N	C N	U ?	D L	D H	D L	U ?	U ?	U ?	U ?	D L	D L	C N	U ?	U ?	C N	U ?	U ?	C N	C N	U ?	C N	D L	C N
Russian olive	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I?	I H	I H	I H	I H	C N	I H	C N	C N	C N	C N	IL	C N	C N	U ?	C N	C N	C N	U ?	C N	C N	C N
quackgrass	C N	C N	C N	D L	D L	D L	D L	D L	D L	C N	C N	D H	D H	D H	D H	D H	D H	D L	C N	C N	D L	D H	D L	C N	D L	D L	D L	C N	C N	D L	D L	D L	C N
leafy spurge	I H	I H	I H	C N	I H	D L	IL	D L	C N	C N	C N	I H	I H	I H	I H	I H	I H	I H	I H	I H	I H	I H	U ?	I H	I H	I H	I H	C N	C N	I H	C N	D L	C N
orange hawkweed	C N	C N	C N	D L	D L	D L	D ?	D H	D H	D H	U ?	U ?	C N	D H	D L	U ?	D H	U ?	U ?	C N	C N	C N	C N	C N	C N	U ?	C N	U ?	C N	U ?	D H	D H	C N
meadow hawkweed	U ?	U ?	D L	D L	D ?	D ?	D H	D H	D H	D H	C N	U ?	C N	I H	U ?	D ?	U ?	U ?	U ?	I?	IL	U ?	U ?	U ?	U ?	U ?	U ?	C N	C N	U ?	D H	D H	C N
St. Johnswort	D	U	I	D	I	D	D	D	D	D	C	D	D	D	D	D	D	U	U	I	I	U	U	U	D	U	D	C	C	U	D	D	C

APPENDIX D
PREVENTION
PROJECT RISK ASSESSMENTS AND BEST MANAGEMENT PRACTICES

Species	Rocky Mtn Juniper	Limber Pine	Ponderosa Pine	Lodgepole	Douglas-fir 1	Douglas-fir 2w	Douglas-fir 3w	Spruce	Subalpine Fir 1e	Subalpine Fir 2e	Whitebark Pine	rc_xeric	Riparian grass - wet	Riparian grass - dry	Riparian shrub	Riparian deciduous	Aspen	Green Ash	androp	Dry grass	Idaho fescue	Western wheatgrass	Salt shrub	Skunkbush	Dry shrub	Shrubby cinquefoil	Big sagebrush	Alpine	Water	Mesic shrub e	rc_sub	rc_mes	Rock
	L	?	H	L	H	L	L	L	L	L	N	L	L	L	L	L	L	?	?	H	H	?	?	?	L	?	L	N	N	?	L	L	N
dyer's woad	U ?	I H	I H	D ?	I H	C N	U ?	C N	C N	C N	C N	I H	C N	D ?	D ?	D ?	D ?	D ?	U ?	I H	I H	U ?	U ?	U ?	I H	U ?	I H	C N	C N	D ?	C N	C N	C N
bluebuttons	U ?	U ?	U ?	U ?	U ?	U ?	U ?	U ?	U ?	U ?	U ?	U ?	C N	D H	U ?	U ?	I H	U ?	U ?	U ?	D H	U ?	U ?	U ?	U ?	U ?	I H	U ?	U ?	U ?	U ?	C N
perennial pepperweed	C N	U ?	C N	C N	C N	C N	C N	C N	C N	C N	C N	D H	D H	D H	D H	D ?	D ?	U ?	U ?	U ?	U ?	U ?	D ?	U ?	C N	U ?	U ?	C N	C N	U ?	C N	U ?	C N
Dalmatian toadflax	I H	I H	I H	D L	IL	D L	D L	C N	C N	C N	C N	U ?	U ?	U ?	D ?	D ?	U ?	U ?	U ?	I H	I H	U ?	U ?	I H	I H	I H	I H	C N	C N	U ?	C N	D L	C N
common toadflax	IL & D H	IL & D H	IL & D H	I H	IL & D H	D L	D L	D L	D L	D L	D L	IL & D H	C N	D H	D L	D L	D L	U ?	U ?	U ?	IL & D H	U ?	U ?	U ?	D L	D L	IL & D H	U ?	C N	D L	D L	D L	C N
purple loosestrife	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I H	I H	I H	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I H	C N	C N	C N
yellow sweetclover	I H	IL	I H	C N	IL	D L	D L	C N	C N	C N	C N	IL	D L	D L	D L	IL	IL	IL	I H	I H	IL	I H	IL	IL	IL	D L	IL	C N	C N	D L	D L	D L	C N
water milfoil	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I H	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I H	C N	C N	C N	C N
reed canarygrass	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I H	I H	I H	D H	U ?	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	I H	C N	D L	D L	C N
sulfur cinquefoil	U ?	I H	I H	D H	I H	D L	D L	D L	D L	C N	C N	I H	D L	D L	D L	D L	D L	U ?	U ?	I H	I H	U ?	C N	U ?	D H	U ?	IL	C N	C N	U ?	D L	D L	C N
tall buttercup	U ?	C N	C N	C N	C N	C N	C N	C N	C N	D L	C N	C N	I H	I H	D H	D ?	D ?	U ?	C N	C N	C N	U ?	C N	C N	C N	D ?	C N	U ?	C N	U ?	D L	D L	C N
perennial sowthistle	C N	C N	C N	C N	C N	C N	C N	U ?	C N	C N	C N	C N	D H	D H	D H	U ?	U ?	C N	C N	C N	C N	C N	C N	U ?	C N	D ?	C N	C N	C N	U ?	C N	U ?	C N
salt cedar, tamarisk	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	D H	D H	D H	D H	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N	C N
common tansy	U ?	C N	C N	D L	C N	D L	D L	D L	D L	D L	C N	D H	D H	D H	D H	D H	D L	U ?	C N	C N	C N	U ?	U ?	C N	C N	U ?	C N	C N	C N	U ?	D L	D L	C N

FOREST SERVICE PROJECT RISK ASSESSMENT PROTOCOL

Activities on National Forest System lands are to be evaluated for risk and level of risk to help project layout and design and project decisions. Once a Risk Assessment is completed, preventative measures (BMPs) can be developed and implemented to reduce the risk of introduction or spread of undesirable plants into the area. The following USFS Northern Region Risk Assessment Rating protocol should be used when evaluating risk of weed spread due to any activity being proposed on NFS managed lands. The following rating numbers are considered to be on a scale of 0-10.

FACTOR 1: Likelihood of Undesirable Plant Species, Including Noxious Weeds Species, Spreading to Project Area:

- **NONE (0):** Undesirable plants, including noxious weed species not located within or immediately adjacent to the project area. Project activity is not likely to result in the establishment of undesirable weed species on the project area.
- **LOW (1):** Undesirable plant species present in areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of undesirable plants into the project area.
- **MODERATE (5):** Undesirable plant species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with undesirable plant species even when preventative management actions are followed. Control measures are essential to prevent the spread of undesirable plants or noxious weeds within the project area.
- **HIGH (10):** Heavy infestations of undesirable plants are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of undesirable plants on disturbed sites throughout much of the project area.

FACTOR 2: **Consequence of Undesirable Plant Establishment in Project Area**

- **LOW (1):** None. No cumulative effects expected.
- **MODERATE (5):** Possible adverse effects on site and possible expansion of infestation within project area. Cumulative effects on native plant community are likely, but limited.
- **HIGH (10):** Obvious adverse effects within the project area and probable expansion of undesirable plants, including noxious weed infestations to areas outside the project area. Adverse cumulative effects on native plant community are probable.

RISK RATING PROCEDURE

Step 1. Identify level of likelihood of adverse effects and assign values on a scale from 0-10 using the following as a guide:

- None: 0
- Low 1
- Moderate 5
- High 10

Step 2. Multiply level of likelihood times level of consequences.
Step 3. Use the value resulting in step 2 to determine Risk Rating and action as follows:

Value	Risk Rating	Action
0	NONE	Proceed as planned
1-10	LOW	Proceed as planned. Initiate control treatments on undesirable plant populations that get established in the area.
25	MODERATE	Develop and Implement preventative management measures for the proposed project to reduce the risk of introduction or spread of undesirable plants into the area. Monitor the area for at least three consecutive years and provide for control of new infestations.
50-100	HIGH	Modify project design and implement preventative management measures for the proposed project to reduce the risk of introduction or spread of undesirable plants into the area. Monitor the area for at least five consecutive years and provide for control of new infestations.

FOREST SERVICE BEST MANAGEMENT PRACTICES (BMPs)

This section is composed of Best Management Practices (BMPs) required by Northern Region Policy, required timber sale contracts, special use permits, and other special considerations for aquatic plant control. Best management practices are guides to use in planning resource management activities and operations. The guides assists manager and cooperators in identifying weed prevention practices that mitigate identified risks of weed introduction and spread for projects and programs. Factors critical in a prevention program include:

- Limiting weed seed dispersal occurring from vehicles and equipment traveling forest roads, and people and livestock traveling forest trails;
- Containing neighboring weed infestations;
- Minimizing soil disturbance;
- Detecting and eradicating newly established weeds;
- Establishing competitive desirable vegetation; and
- Managing forage, including re-vegetation and shade management.
- Limiting weed seed dispersal occurring from livestock feed.

Weed Seed Free Policy

The Weed Seed Free Feed and Straw program is a Forest and Region-wide requirement. This program requires all hay, straw and processed feeds entering the Forest to be certified free of weed seed. The certification program is controlled by the Montana and South Dakota State Departments of Agriculture and relies on a field survey of crops prior to harvest.

Northern Region - Forest Service Manual Policy

The following policy (FSM 2080, Supplement No.: R1 2000-2001-1) outlines Best Management Practices to be used as protection measures to various authorized activities on National Forest System lands in the Northern Region.

2080.4 - Responsibility.
Encourage weed awareness and education in employee development and training plans and orientation for both field and administrative work.

2080.43 - Forest Supervisor.
Forest Supervisors are responsible for:

1. Emphasizing weed awareness and weed prevention in all fire training, especially resource advisors, fire management teams, guard school, and district orientation.
2. Adding weed awareness and prevention education to Fire Effects and Prescribed Fire training.
3. Giving helicopter managers training in weed prevention and protection measures.
4. Resource Advisors should provide briefings to identify operational practices to reduce weed spread.
5. Providing Field Observers with weed identification aids and striving to avoid weed infestations in fire line location.

2080.44 - District Rangers.
District Rangers are responsible for:

1. Providing weed prevention briefings for helibase staff.
2. Ensuring at least one permanent staff member per District is trained and proficient in weed management.
3. Applying weed treatment and prevention on all Forest Service administrative sites including Ranger Stations, trailheads, campgrounds, pastures, interpretive and historic sites.

2081 – MANAGEMENT OF NOXIOUS WEEDS.
2081.2 - Prevention and Control Measures.

1. **Roads**.
    a. **Required** Objectives and Associated Practices.
        (1) Incorporate weed prevention into road layout, design, and alternative evaluation. Environmental analysis for road construction and reconstruction will include weed risk assessment.
        (2) Remove the seed source that could be picked up by passing vehicles and limit seed transport in new and reconstruction areas.
            (a) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. This does not apply to

service vehicles that will stay on the roadway, traveling frequently in and out of the project area.

(b) Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders as determined by the Forest/District Weed Specialist. Reference Contract Provision C/CT 6.626.

(3) Re-establish vegetation on bare ground due to construction and reconstruction activity to minimize weed spread.

(a) Revegetate all disturbed soil, except the travel way on surfaced roads, in a manner that optimizes plant establishment for that specific site, unless ongoing disturbance at the site will prevent weed establishment. Use native material where appropriate and available. Use a seed mix that includes fast, early season species to provide quick, dense revegetation. To avoid weed contaminated seed, each lot must be tested by a certified seed laboratory against the all State noxious weed lists and documentation of the seed inspection test provided.

(b) Use local seeding guidelines for detailed procedures and appropriate mixes. Use native material where appropriate and available. Revegetation may include planting, seeding, fertilization, and weed-free mulching as indicated by local prescriptions.

(c) Monitor and evaluate success of revegetation in relation to project plan. Repeat as indicated by local prescriptions.

(4) Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. The borrow pit will not be used if new invaders, defined by the Forest Weed Specialist, are found on site.

(5) Minimize sources of weed seed in areas not yet revegetated. If straw is used for road stabilization and erosion control, it must be certified weed-free or weed-seed free.

(6) Minimize roadside sources of weed seed that could be transported to other areas during maintenance.

(a) Look for priority weed species during road maintenance and report back to District Weed Specialist.

(b) Do not blade roads or pull ditches where new invaders are found.

(c) Maintain desirable roadside vegetation. If desirable vegetation is removed during blading or other ground disturbing activities, area must be revegetated according to section (3) (a), (b), (c) above.

(d) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)

(e) Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders, as determined by the Forest Weed Specialist. Reference Contract Provision C/CT 6.626.

(f) Straw used for road stabilization and erosion control will be certified weed-free or weed-seed-free.

(7) Reduce weed establishment in road obliteration/reclamation projects. Revegetate according to section (3) (a), (b), (c) above.

b. **Recommended** Objectives and Associated Practices.

(1) Retain shade to suppress weeds. Consider minimizing the removal of trees and other roadside vegetation during construction, reconstruction, and maintenance, particularly on southerly aspects.

(2) Consider re-establishing vegetation on bare ground due to construction and reconstruction activity to minimize weed spread. Road maintenance programs should include scheduled fertilization to maintain vigor of competitive vegetation (3-year period suggested).

(3) Minimize the movement of existing and new weed species caused by moving infested gravel and fill material. All gravel and borrow sources should be inspected and approved before use and transport. The source will not be used if the weeds present at the pit are not found at the site of intended use. If weeds are present, they must be treated before transport and use.

(4) Minimize roadside sources of weed seed that could be transported to other areas. Weed infestations should be inventoried and scheduled for treatment.

(5) Ensure that weed prevention and related resource protection are considered in travel management. Consider weed risk and spread factors in travel plan (road closure) decisions.

(6) Reduce weed establishment in road obliteration/reclamation projects. Consider treating weeds in road obliteration and reclamation projects before roads are made undriveable. Monitor and retreat as indicated by local analysis and prescription.

(7) Evaluate and prioritize noxious weeds along existing Forest Service access roads leading to project area and treat as indicated by local analysis and prescriptions, before construction equipment moves into project area. New road construction must be revegetated as described in Weed Prevention measure, see Roads Required Objectives and Associated Practices section (3) (a), (b), (c) above.

2. Recreation, Wilderness, Roadless Areas.

a. **Required** Objectives and Associated Practices.

(1) Minimize transport and establishment of weeds on National Forest Service lands.
- (a) Include environmental analysis for recreation and trail projects in weed risk assessment.
- (b) Post and enforce statewide weed-free feed orders.
- (c) Seed only when necessary at backcountry sites to minimize introduction of nonnative species and weeds. Reseed according to Roads (3) (a), (b), (c) above.

(2) Reduce weed establishment and spread from activities covered by Recreation Special Use Permits.
- (a) Include Clause R1-D4, (or subsequent approved direction), in all new and reissued recreation special use permits, authorizations, or other grants involving ground-disturbing activities. Include this provision in existing ground-disturbing authorizations, which are being amended for other reasons.
- (b) Revegetate bare soil resulting from special use activity according to Roads (3) (a), (b), (c) above.

(3) Prevent weed establishment resulting from land and float trail use, construction, reconstruction and maintenance activities.
- (a) Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders (as determined by the Forest Weed Specialist).

b. **Recommended** Objectives and Associated Practices.

(1) Minimize transport and establishment of weeds on National Forest System (NFS) lands.
- (a) Encourage backcountry pack and saddle stock users to feed only weed-free feed for several days prior to traveling off roads in the Forest. Before entering NFS land, animals should be brushed to remove any weed seed.
- (b) Stock should be tied and/or held in the backcountry in such a way as to minimize soil disturbance and avoid loss of native/desirable vegetation.
- (c) Maintain trailheads, boat launches, outfitter and public camps, airstrips, roads leading to trailheads, and other areas of concentrated public use in a weed-free condition.
- (d) Motorized and/or mechanized (such as mountain bikes) trail users should inspect and clean their vehicles prior to using NFS lands.

(2) Consider reducing weed establishment and spread from activities covered by recreation, special use permits. Consider including Clause R1-D4, (or subsequent approved direction), by amending existing ground-disturbing authorizations as indicated by local prescriptions.

(3) Prevent weed establishment resulting from land and float trail use, construction, reconstruction, and maintenance activities.
- (a) All trail crews should inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment.
- (b) Inspect and approve all gravel and borrow sources before use and transport. The source will not be used if the weeds present at the pit are not found at the site of intended use. If weeds are present, they must be treated before transport and use.

3. Cultural Resources.

a. **Required** Objectives and Associated Practices. Reduce weed establishment and spread at archeological excavations.

(1) Revegetate bare soil resulting from cultural resource excavation activity according to the Roads (3) (a), (b), (c) section above.

4. Wildlife, Fisheries, and Botany.

a. **Required** Objectives and Associated Practices. Incorporate weed prevention into wildlife, fisheries, and botany project design.

(1). Include weed risk assessment in environmental analysis for wildlife, fish and botany projects with ground disturbing actions.

(2). Revegetate bare soil resulting from wildlife and fish project activity according to the Roads (3) (a), (b), (c) section above.

(0) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)
(1) Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders (as determined by the Forest Weed Specialist).

5. **Range**.
   a. **Required** Objectives and Associated Practices.
      (1) Ensure weed prevention and control is considered in management of all grazing allotments.
         (a) Include weed risk assessment in environmental analysis for rangeland projects.
         (b) When other plans do not already address noxious weeds, include practices and control measures in Annual Operating Plans.
      (2) Minimize ground disturbance and bare soil.
         (a) Revegetate, where applicable, bare soil from grazing activities according to the Roads (3) (a), (b), (c) section above.
         (b) Check areas of concentrated livestock use for weed establishment and treat new infestations.
      (3) Minimize transport of weed seed into and within allotments.
         (a) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)
         (b) Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders (as determined by the Forest Weed Specialist).
         (c) Straw used for road stabilization and erosion control will be certified weed-free or weed-seed-free.

   b. **Recommended** Objectives and Associated Practices.
      (1) Transport of weed seed into and within allotments should be minimized.
         (a) Avoid driving vehicles through off-road weed infestations.
         (b) Feed certified weed-free feed to livestock for several days prior to moving them onto the allotment to reduce the introduction of new invaders and spread of existing weed species. Consider using transitional pastures when moving animals from weed infested areas to the National Forest. (Transitional pastures are designated fenced areas that can be logistically and economically maintained.)
         (c) Consider excluding livestock from sites with new invaders or treat new invaders in these areas before entry by livestock.
      (2) Maintain healthy desirable vegetation that is resistant to noxious weed establishment.
         (a) Consider managing forage utilization to maintain the vigor of desirable plant species as described in the Allotment Management Plan.
         (b) Minimize or exclude grazing on restoration areas until vegetation is well established.

6. **Timber**.
   a. **Required** Objectives and Associated Practices.
      (1) Ensure that weed prevention is considered in all pre-harvest timber projects.
         (a) Include weed risk assessment in environmental analysis for timber harvest projects.
         (b) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.) Reference Contract Provision C/CT6.26
         (c) Clean all equipment prior to leaving the project site, if operating in areas infested with new invaders (as designated by the Forest Weed Specialist). Reference Contract Provision C/CT6.261
      (2) Minimize the creation of sites suitable for weed establishment. Revegetate bare soil as described in the Roads (3) (a), (b), (c) section above.

   b. **Recommended** Objectives and Associated Practices.
      (1) Ensure that weed prevention is considered in all timber projects.
         (a) Consider treating weeds on roads used by timber sale purchasers. Reference Contract Provision C/CT6.26.
         (b) Treat weeds on landings, skid trails and helibases that are weed infested before logging activities, where practical.
      (2) Minimize the creation of sites suitable for weed establishment. Soil disturbance should be minimized to meet harvest project objectives.

(3) Consider monitoring for weeds after sale activity and treat weeds as indicated by local prescriptions.
   (a) Consider trust, stewardship, or other funds to treat soil disturbance or weeds as needed after timber harvest and regeneration activities.
   (b) Consider monitoring and treating weed infestations at landings and on skid trails after harvest.

7. **Minerals**.
   a. **Required** Objectives and Associated Practices.
      (1) Minimize weed establishment in mining, oil and gas operations, and reclamation.
         (a) Include weed risk assessment in environmental analysis for minerals and oil and gas projects.
         (b) Include weed prevention measures in operation and/or reclamation plans.
         (c) Retain bonds until reclamation requirements are completed.
         (d) Revegetate bare soil as described in the Roads (3) (a), (b), (c) section above.
      (2) Remove seed source and limit seed transport into new or existing mining and oil and gas operations. Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)
      (3) Minimize weed spread caused by moving infested gravel and fill material.
         (a) The borrow pit will not be used if new invaders (as defined by the Forest Weed Specialist) are found on the site.
         (b) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)
         (c) Do not establish new gravel and fill material sources in areas where new invaders are present on National Forest Service lands. Where widespread weeds occur at new pit sites strip at least the top 8" and stockpile contaminated material. Treat weeds at new pits where widespread weeds are present.

   b. **Recommended** Objectives and Associated Practices.
      (1) Consider removing seed source and limiting seed transport into new or existing mining and oil and gas operations. Where applicable, treat weeds on project access routes. Reference Contract Provision C/CT6.27.
      (2) Minimize weed spread caused by moving infested gravel and fill material.
         (a) Inspect and approve all gravel and borrow sources before use and transport. The source should not be used if the weeds present at the pit are not found at the site of intended use. If weeds are present, they should be treated before transport and use.
         (b) Consider maintaining stockpiled material in a weed-free condition.
         (c) Check the area where pit material is used to ensure that no weed seeds are transported to the use site.

8. Soil and Water.
   a. **Required** Objectives and Associated Practices.
      (1) It is required that integrated weed prevention and management be used in all soil, watershed, and stream restoration projects.
         (a) Include weed risk assessment in environmental analysis for soil, watershed, and stream restoration projects with ground disturbing actions.
         (b) Revegetate bare soil resulting from excavation activity according to the Roads (3) (a), (b), (c) section above.
         (c) Remove all mud, dirt, and plant parts from all off road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)
         (d) Clean all equipment prior to leaving the project site, if operation in areas infested with new invaders (as designated by the Forest Weed Specialist).
         (e) Straw used for road stabilization and erosion control will be certified weed-free or weed-seed-free.

   b. **Recommended** Objectives and Associated Practices.

(2) Integrate weed prevention and management in all soil, watershed, and stream restoration projects by considering treating weeds in road obliteration and reclamation projects before roads are made undriveable. Monitor and retreat as indicated by local prescriptions.

9. Lands and Special Uses.

a. **Required** Objectives and Associated Practices.

(1) Incorporate weed prevention provisons in all special use permits, road use permits, and easements.

(a) Include weed risk assessment in environmental analysis for land projects with ground disturbing actions.

(b) Revegetate bare soil as described in the Roads (3) (a), (b), (c) section above, as a condition of the authorization.

(c) Include approved special use provision R1-D4, see FSH 2709.11, chapter 50, (or subsequent approved direction) in all new and reissued special use permits, authorizations, or other grants involving ground disturbing activities. Include this provision in existing ground disturbing authorizations, which are being amended for other reasons .

(d) Include noxious weed prevention and control measures as indicated by local prescriptions in new or reissued road permits or easements granted pursuant to FLPMA (P.L. 94579 0/2/76), FRTA (P.L. 88657 0/3/64) or subsequent authorities. This includes FLPMA Private and Forest Road Permits and Easements; FRTA Private and Forest Road Easements; Cost Share Easements; and Road Use (commercial haul) Permits (7730). (While the approved terms and conditions of certain permits or easements may not provide for modification, the necessary weed prevention and control provisions may be included in written plans, specifications, stipulations and /or operation and maintenance plans attached to and made a part of the authorization.)

(e) Clean all equipment prior to leaving the project site, if operating in areas infested with New Invaders (as designated by the Forest Weed Specialist).

(2) Minimize weed spread caused by moving infested gravel and fill material.

(a) Do not establish new gravel and fill material sources on National Forest Service lands in areas where new invaders are present. Where widespread weeds occur at new pit sites strip at least the top 8" and stockpile contaminated material. Treat weeds at new pits where widespread weeds are present.

(b) Remove all mud, dirt, and plant parts from all off-road equipment before moving into project area. Cleaning must occur off National Forest lands. (This does not apply to service vehicles that will stay on the roadway, traveling frequently in and out of the project area.)

b. **Recommended** Objectives and Associated Practices.

(1) Incorporate weed prevention provisions in all special use permits, road use permits and easements.

(a) Consider including special use provision R1-D4 by amending existing ground disturbing authorizations as indicated by local prescriptions.

(b) Consider including noxious weed prevention and control provisions by amending existing ground disturbing authorizations when determined to be necessary by the authorized officer. (While the approved terms and conditions of certain permits or easements may not provide for modification, the necessary weed prevention and control provisions may be included in written plans, specifications, stipulations and/or operation and maintenance plans attached to and made a part of the authorization.)

(2) Minimize weed spread caused by moving infested gravel and fill material. All gravel and borrow sources should be inspected and approved before use and transport. The source should not be used if the weeds present at the pit are not found at the site of intended use. If weeds are present, they should be treated before transport and use.

10. Fire.

a. **Required** Objectives and Associated Practices.

(1) Increase weed awareness among all fire personnel. Include weed risk factors and weed prevention considerations in the Resource Advisor duties on all Incident Management Teams and Fire Rehabilitation Teams during pre-fire, pre-incident training.

(2) Mitigate and reduce weed spread during wild fire activities

(a) Initiate establishment of a network of helibases, camps and staging areas that will be maintained in a noxious weed-free condition.

(b) Minimize weed spread in camps by incorporating weed prevention and containment practices such as mowing, flagging or fencing weed patches, designating weed-free travel routes and washing equipment.
(c) Inspect all fire going vehicles regularly to assure that undercarriages and grill works are kept weed seed free. All vehicles sent off Forest for fire assistance will be cleaned before they leave or return to their home.

(3) Minimize weed spread during smoke jumper operations.
(a) Inspect, remove, and properly dispose of weed seed and plant parts found on clothing and equipment.
(b) Coordinate with Weed Specialist(s) to locate and/or treat practice jump areas.

(4) Mitigate and reduce weed spread in Air Operations.
(a) Initiate establishment of a network of helibases that will be maintained in a noxious weed-free condition.
(b) Minimize weed spread at helibases by incorporating weed prevention and containment practices such as mowing, flagging or fencing weed patches, designating weed-free travel routes.
(c) Provide weed prevention briefings for helibase staff.
(d) Inspect, and if necessary clean, contract fuel and support vehicles before and after each incident when travelling off road or through weed infestations.
(e) Inspect and remove weed seed and plant parts from all cargo nets.

(5) Mitigate and reduce weed spread from Logistics Operations activities.
(a) Look for weed-free camps, staging, drop points and parking areas.
(b) Regularly inspect and clean fire vehicles as necessary to assure that undercarriages and grill works are kept weed seed free.

(6) Integrate weed prevention and management in all prescribed burning. Mitigate and reduce weed spread during prescribed fire activities.
(a) Include weed risk assessment in environmental analysis for prescribed fire projects.
(b) Coordinate with local Noxious Weed Management Specialist to utilize helibases that are maintained in a weed-free condition, whenever possible.
(c) All crews should inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment.
(d) Add weed awareness and prevention education to Fire Effects and Prescribed Fire training.

(7) Encourage desirable vegetation during rehabilitation activities.
(a) Revegetate only erosion susceptible and high risk areas (as defined in Regional Risk Assessment Factors and Rating protocol) as described in the Roads (3) (a), (b), (c) section above.
(b) Straw used for road stabilization and erosion control will be certified weed-free or weed-seed-free.

b. **Recommended** Objectives and Associated Practices.

(1) Mitigate and reduce weed spread during fire activities.
(a) Initiate establishment of a network of helibases, camps, and staging areas on private land that will be maintained in a noxious weed-free condition.
(b) Consider checking and treating weeds that establish at cleaning sites after fire incidents, during rehabilitation.
(c) Emphasize Minimum Impact Suppression Tactics (M.I.S.T.) to reduce soil and vegetation disturbance.

(2) Minimize weed spread during smokejumper operations. Travel through weed infested areas should be avoided or minimized.

(3) Mitigate and reduced weed spread from Logistics Operations activities. Traffic should be routed through camps to avoid weed infested areas.

(4) Integrate weed prevention and management in all prescribed burning. Mitigate and reduce weed spread during prescribed fire activities.
(a) Consider treating high risk areas (as defined in Regional Risk Assessment Factors and Rating protocol) with weed infestations (such as roads, disturbed ground) before burning and check and retreat after burning if necessary.
(b) Consider avoiding ignition and burning in high risk areas (as defined in Regional Risk Assessment Factors and Rating protocol) that cannot be treated before or after prescribed fire.

(5) Encourage desirable vegetation during rehabilitation activities.
(a) Check and treat weeds at cleaning sites and all disturbed staging areas.

(b) Treat weeds within the burned area as part of rehabilitation plan to reduce weed spread.
(c) Check weed spread resulting from fire and fire suppression activities.
(d) Consider applying for restoration funding for treatment of weed infestations within the fire area.

11. Administration.

a. **Required** Objectives and Associated Practices.

(1) Ensure all Forest Service employees are aware of and knowledgeable about noxious weeds.
(a) Train Line Officers in noxious weed management principles and practices.
(b) Each unit will have access to Weed Specialist at the Ranger District or Supervisor's Office.
(2) Ensure all Forest workers are reducing the chance of spreading noxious weeds. All Forest workers will inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment including Forest Service vehicles.

b. **Recommended** Objectives and Associated Practices.

(1) Consider a reward program for weed awareness, reporting, and beating new invaders.

2082 - COOPERATION.

1. **Required** Objectives and Associated Practices. Coordinate road maintenance activities with herbicide applications to maximize efficacy. Ensure road blading and roadside herbicide applications are coordinated chronologically to minimize herbicide use and increase effectiveness.

2. **Recommended** Objectives and Associated Practices. Consider providing Plans Section with weed control contact familiar with weeds in the fire area.

2082.2 - Methods of Cooperation.

1. **Required** Objectives and Associated Practices.

a. Reduce weed establishment and spread at archeological excavations. Passports In Time programs and other Cultural Resource workers shall be given weed briefings and will inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment.
b. Promote weed awareness and prevention efforts among range permittees. Discuss weed awareness and prevention practices at annual permittee meetings.

Riparian and Aquatic Herbicide Use

Generally, the use of herbicides near waterways for weed control should be minimized and therefore it is important to consider other integrated pest management techniques that can be alternatives to, or complementary with, herbicides. However, for some weeds such as purple loosestrife, salt cedar, or Eurasian watermilfoil, aquatic herbicide treatment may be necessary. When used correctly, herbicides can be very effective and have limited impact on the environment. Appendix C - Protection Measures outline herbicide restrictions and limitations, including vegetative buffers and setbacks in riparian and aquatic settings.

The risk of waterway contamination or unwanted effects resulting from registered herbicide use in riparian or aquatic situations can be reduced by following a simple checklist below These general practices presented in the checklist are in addition to and not a replacement for, label directions and the pertinent codes of practice relating to chemical application. Always seek site-specific advice if you are unsure of herbicide impacts on both the target weed and any non-target species (flora and fauna).

- If possible suppress targeted aquatic weeds by restricting light and nutrients.
- Assess the risk to non-target organisms based on herbicide mobility, persistence and toxicity.
- Provide contractors with a map showing the location of waterways and associated soaks and drains.
- Avoid treating dense beds of submerged weeds in a single application as this may cause de-oxygenation when they rot.
- Weeds overhanging a waterway or growing within the channel should be treated as an aquatic situation.
- Spray when heavy rain is not expected for some time (a minimum of several days).
- Choose the application method that minimizes the amount of herbicide used and its dispersal.
- If spraying towards a waterway clearly mark the edge beforehand.
- Ensure that equipment is properly maintained, adjusted and not leaking.
- Around waterways carry herbicide only in secure containers.
- Only add surfactants to herbicides registered for aquatic use if they are specified on the label.
- Mix chemicals and rinse equipment well away from the waterway.
- Direct herbicide spray away from the waterway if at all possible.
- Apply the minimum amount of spray required to achieve the degree of wetting specified on the label.
- Move upstream when spraying to maximize dilution.

Pit and Stockpile Guidelines - Aggregate and Borrow Material

The following noxious weed management guidelines clarify best management practices related to pit or stockpile sources for aggregate and borrow material requirements and recommendations outlined in FSM 2080, Supplement No.: R1 2000-2001-1, subpart 2081.2 - Prevention and Control Measures, item 1, Roads and item 7, Minerals.

The following protocol should be used for all pits or stockpiles in which aggregate and borrow material will be used on Custer National Forest managed lands[1]. On right-of-ways where intermingled road jurisdiction occurs, coordination with appropriate counties or other management agencies (i.e. Montana or South Dakota Departments of Transportation, FHA, etc.) may be needed to recommend these best management practices be used.

Inspection Guidelines for Pit or Stockpiles with Weeds

Depending upon the length of use of pit material, one to two inspections of the pit or stockpile during the summer growing season should be conducted[2]. Inspection protocols include:

- Coordinate and identify pits/stockpiles to be surveyed with appropriate individuals.
- Obtain basic pit/stockpile information relative to location, ownership, and where the material is being proposed for use.
- Contact pit/stockpile landowner or operator to arrange inspection.
- Conduct windshield inspection of overall pit/stockpile area (active and inactive portions of the site).
- Conduct a walking inspection of the active operations area and transport routes.
- Photograph stockpile or pit operations and designated noxious weed infestations.
- List designated noxious weeds found, location, and number.
- Map designated noxious weed infestation locations relative to the pit/stockpile active operations area and transport routes.
- Discuss the inspection results with the landowner or operator.
- Submit documented inspection to the appropriate project manager on the Forest and to the owner/operator.
- The project manager should maintain pit / stockpile specific files including the weed management plan, basic information, inspection, photographs, map, etc.
- The owner/operator or contractor can have a qualified weed expert, such as a county extension agent or county weed supervisor, use this inpection protocol and submit pit or stockpile inspection documentation for Forest Service approval.

Types of Approved Pits or Stockpiles. The following types of pits or stockpiles are approved sources for aggregate and borrow material to be used on Custer National Forest managed lands.

- ***Weed Free Approved Pit or Stockpile.*** No Montana, Wyoming, South Dakota, or North Dakota designated noxious weeds (including county designated noxious weeds) are permitted to produce seeds in the active operations area[3]. This type of pit or stockpile will only be approved for up to one year at a time, pending growing conditions and the possible need for more than one inspection.

- ***Conditionally Approved Pit or Stockpile.*** A maximum of two MT/WY/SD/ND designated noxious weed species (including county designated noxious weeds) with a total of less than ten weeds (plants) are permitted to produce seeds in the **active operations area** (mining, crushing, loading, material source, equipment storage or within 20 feet of road shoulders). All topsoil, overburden, and other materials (six inch depth minimum) within 10 feet of all designated noxious weeds in the active pit area which may contain viable weed seeds shall be moved to an inactive area of the pit for storage and future treatment.

  In addition, less than 100 total weeds (plants) consisting of a maximum of two MT/WY/SD/ND designated noxious weeds (including county designated noxious weeds) produced seed in the **inactive pit or stockpile areas** such as overburden piles, reject piles, and pit periphery involving no traffic. No new invaders to the area are noted. Pits or stockpiles will only be conditionally approved for up to one year, pending growing conditions and the possible need for more than one inspection.

- ***Heat Treated Approved Pit or Stockpile.*** Due to unacceptable type(s) of species or amount of designated noxious weed infestations in the pit or stockpile, all material must be heat treated to 300 degrees Fahrenheit and transported from the pit within 7 days of heat treating.

[1] Adapted from the Greater Yellowstone Weed Coordinating Committee Gravel Pit Guidelines. 2006
[2] Two inspections may be needed in high moisture years and / or in areas where noxious weed species are known to germinate periodically throughout the growing season (i.e. spotted knapweed) or are abundant enough in adjacent areas where more viable seeds have a higher probability of occurring.
[3] This would include new non-native species to the area known to be highly invasive in other areas of the country.

Best Management Practices Soil and Water Conservation Practices (FSH 2509.22)

The following BMPs for this project were selected from the Soil and Water Conservation Handbook (2509.22). Application of the BMPs will ensure compliance with the requirements of the Federal Water Pollution Control Act.

13.08: Pesticide Application According to Label Directions and Applicable Legal Requirements – All approved herbicides will be applied according to label instructions to avoid water contamination. Directions found on the label of each herbicide are detailed and specific, and include legal requirements for use. These constraints will be incorporated into the individual project plans and contracts. Responsibility for in-service projects rests with the Forest Service's project supervisor who shall be a certified applicator. For contracted projects, it is the responsibility of the contracting officer or the contracting officer's representative to ensure that label instructions and other applicable legal requirements are followed.

13.09: Pesticide Application Monitoring and Evaluation – The objective of this BMP is to determine whether pesticides were applied safely, restricted to intended target areas, and deposited at the right rates. It is also designed to evaluate if non-target species were impacted. Another component is also to provide early warning of possible hazardous conditions and determine the extent, severity, and duration of any potential hazard that might exist. Monitoring methods include spray cards, dye tracing, and direct measurements of herbicides on plants or near water. Monitoring of existing herbicide concentrations will be conducted prior to any treatments in riparian corridors where perennial water is found.

13.10: Pesticide Spill Contingency Plan – The objective of this BMP is to eliminate contamination of water or the soil resource that may occur from accidental spills. The spill plan is found in Appendix M.

13.11: Cleaning and Disposal of Herbicide Containers – This BMP is designed to prevent water contamination from cleaning or disposal of herbicide containers. The cleaning and disposal of these items will be done in accordance with Federal, State, and local laws. The forest or district pesticide use coordinator will approve proper rinsing procedures in accordance with State and local laws and regulations, and arrange disposal of containers when in-service personnel apply the product. When a contractor applies the herbicide, the contractor is responsible for proper container disposal in accordance with label instructions.

13.12: Protection of Water, Wetlands, and Riparian Areas During Pesticide Spraying.
The objective of this BMP is to minimize the risk of pesticide entering surface or subsurface waters or affecting riparian areas, wetlands, and other non-target areas. Untreated buffer strips will be left alongside surface waters, wetlands and riparian areas. Protection of untreated areas is the responsibility of Forest Service project supervisor for In-service projects and the COR for contracted projects.

13.13: – Controlling Pesticide Drift During Spray Application – The objective of this BMP is to minimize risk of pesticides falling directly into water or non-target areas. The spray application of herbicides is accomplished according to a prescription which accounts for terrain, and that specifies the following: spray exclusion areas, buffer zones, and factors such as formulation, equipment, droplet size, spray height, application pattern, flow rate, and the limiting factors of wind speed and direction, temperature, and relative humidity. On in-service projects, the Forest Service project manager supervisor is responsible for ensuring the prescription is followed, whereas if contracted, the contracting officer is delegated the responsibility.

Forest Service Timber Sale Contract Provisions

The following are timber sale contract clauses intended to help prevent spread of weeds.

WO-C6.36

C6.36 – EQUIPMENT CLEANING. (5/01) Unless the entire Sale Area is already infested with specific noxious weed species of concern, Purchaser shall ensure that prior to moving on to the Sale Area all off-road equipment, which last operated in areas known by Forest Service to be infested with specific noxious weeds of concern, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Purchaser shall certify in writing that off-road equipment is free of noxious weeds prior to each start-up of timber sale operations and for subsequent moves of equipment to Sale Area. The certification shall indicate the measures taken to ensure that off-road equipment is free of noxious weeds will be identified. "Off-road equipment" includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. A current list of noxious weeds of concern to Forest Service is available at the Forest Supervisor's Office.

Purchaser must clean off-road equipment prior to moving between cutting units on this timber sale that are known to be infested with noxious weeds and other units, if any, that are free of such weeds. Sale Area Map shows areas, known by Forest Service prior to timber sale advertisement, that are infested with specific noxious weed species of concern.

Purchaser shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

Purchaser shall notify Forest Service at least 5 days prior to moving each piece of off-road equipment on to the Sale Area, unless otherwise agreed. Notification will include identifying the location of the equipment's most recent operations. If the prior location of the off-road equipment cannot be identified, Forest Service may assume that it was infested with noxious weed seeds. Upon request of Forest Service, Purchaser must arrange for Forest Service to inspect each piece of off-road equipment prior to it being placed in service.

If Purchaser desires to clean off-road equipment on National Forest land, such as at the end of a project or prior to moving to a new unit that is free of noxious weeds, Purchaser and Forest Service shall agree on methods of cleaning, locations for the cleaning, and control of off-site impacts, if any.

New infestations of noxious weeds, of concern to Forest Service and identified by either Purchaser or Forest Service on the Sale Area, shall be promptly reported to the other party. Purchaser and Forest Service shall agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. In the event of contract modification under this Subsection, Purchaser shall be reimbursed for any additional protection required, provided that any work or extra protection required shall be subject to prior approval by Forest Service. Amount of reimbursement shall be determined by Forest Service and shall be in the form of a reduction in stumpage rates, unless agreed otherwise in writing. However, in no event may stumpage rates be reduced below Base Rates.

INSTRUCTIONS: Include in all new contracts.

The Forest Service must identify on the sale area map units that are infested with specific noxious weeds species of concern.

The prospectus for the sale must notify prospective purchasers that maps of these known locations are available from the local Forest Supervisor's Office or District Ranger Station. A list of noxious weeds of concern to the Forest Service (normally included in the Noxious Weed Program Guide) must be available for the purchaser's inspection. The current National Forest Noxious Weed Program Guide, noxious weed atlas, or other data sources, as needed, will be used to determine locations of known infestation.

Significant changes in the status of noxious weed infestations on the sale may require contract modifications to deal with changed conditions. An example might be where new noxious weed infestations are discovered after contract award, which require costly additional methods to prevent the spread of such infestations.

WO-CT6.36

CT6.36 – EQUIPMENT CLEANING. (5/01) Unless the entire Sale Area is already infested with specific noxious weed species of concern, Purchaser shall ensure that prior to moving on to the Sale Area all off-road equipment, which last operated in areas known by Forest Service to be infested with specific noxious weeds of concern, is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. Purchaser shall certify in writing that off-road equipment is free of noxious weeds prior to each start-up of timber sale operations and for subsequent moves of equipment to Sale Area. The certification shall indicate the measures taken to ensure that off-road equipment is free of noxious weeds will be identified. "Off-road equipment" includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. A current list of noxious weeds of concern to Forest Service is available at the Forest Supervisor's Office.

Purchaser must clean off-road equipment prior to moving between cutting units on this timber sale that are known to be infested with noxious weeds and other units, if any, that are free of such weeds. Sale Area Map shows areas, known by Forest Service prior to timber sale advertisement, that are infested with specific noxious weed species of concern.

Purchaser shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

Purchaser shall notify Forest Service at least 5 days prior to moving each piece of off-road equipment on to the Sale Area, unless otherwise agreed. Notification will include identifying the location of the equipment's most recent operations. If the prior location of the off-road equipment cannot be identified, Forest Service may assume that it was infested with noxious weed seeds. Upon request of Forest Service, Purchaser must arrange for Forest Service to inspect each piece of off-road equipment prior to it being placed in service.

If Purchaser desires to clean off-road equipment on National Forest land, such as at the end of a project or prior to moving to a new unit that is free of noxious weeds, Purchaser and Forest Service shall agree on methods of cleaning, locations for the cleaning, and control of off-site impacts, if any.

New infestations of noxious weeds, of concern to Forest Service and identified by either Purchaser or Forest Service on the Sale Area, shall be promptly reported to the other party. Purchaser and Forest Service shall agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. In the event of contract modification under this Subsection, Purchaser shall be reimbursed for any additional protection required, provided that any work or extra protection required shall be subject to prior approval by Forest Service. Amount of reimbursement shall be determined by Forest Service and shall be in the form of a reduction in stumpage rates, unless agreed otherwise in writing. However, in no event may stumpage rates be reduced below Base Rates.

INSTRUCTIONS: Include in all new contracts.

The Forest Service must identify on the sale area map units that are infested with specific noxious weeds species of concern.

The prospectus for the sale must notify prospective purchasers that maps of these known locations are available from the local Forest Supervisor's Office or District Ranger Station. A list of noxious weeds of concern to the Forest Service (normally included in the Noxious Weed Program Guide) must be available for the purchaser's inspection. The current National Forest Noxious Weed Program Guide, noxious weed atlas, or other data sources, as needed, will be used to determine locations of known infestation.

Significant changes in the status of noxious weed infestations on the sale may require contract modifications to deal with changed conditions. An example might be where new noxious weed infestations are discovered after contract award, which require costly additional methods to prevent the spread of such infestations.

Special Use Permit Supplemental Clause

Northern Region policy is to include a weed prevention and control provision, such as the following supplemental clause example, in all new special-use authorizations such as, permits, easements, and leases, or when those authorizations are amended, when there are ground-disturbing activities.

The following is a weed prevention and control supplemental clause approved for use in Region 1 (FSH 2709.11, 50 - R1 Supplement 2709.11-2000-1). Use this clause in all authorizations involving ground disturbance which could result in the introduction or spread of noxious weeds and/or exotic plants. This clause may also be used where cooperative agreements for noxious weed control are in place with state and local governments.

> *The holder shall be responsible for the prevention and control of noxious weeds and/or exotic plants of concern on the area authorized by this authorization and shall provide prevention and control measures prescribed by the Forest Service. Noxious weeds and exotic plants of concern are defined as those species recognized by* (insert county weed authority and/or national forest) *in which the authorized use is located.*
>
> *The holder shall also be responsible for prevention and control of noxious weed and exotic plant infestations which are not within the authorized area, but which are determined by the Forest Service to have originated within the authorized area.*
>
> *When determined to be necessary by the authorized officer, the holder shall develop a site-specific plan for noxious weed and exotic plant prevention and control. Such plan shall be subject to Forest Service approval. Upon Forest Service approval, the noxious weed and exotic plant prevention and control plan shall become a part of this authorization, and its provisions shall be enforceable under the terms of this authorization.*

With respect to the second paragraph of the above provision, the intent is to apply this provision only for a well defined confined area such as a narrow linear right-of-way where it can be determined without a doubt that the noxious weeds resulted from the activities of the holder.