

Backcountry Road Maintenance and Weed Management



Where there's roads, there's weeds...

➔ It's not easy to improve or maintain backcountry roads without spreading noxious weeds

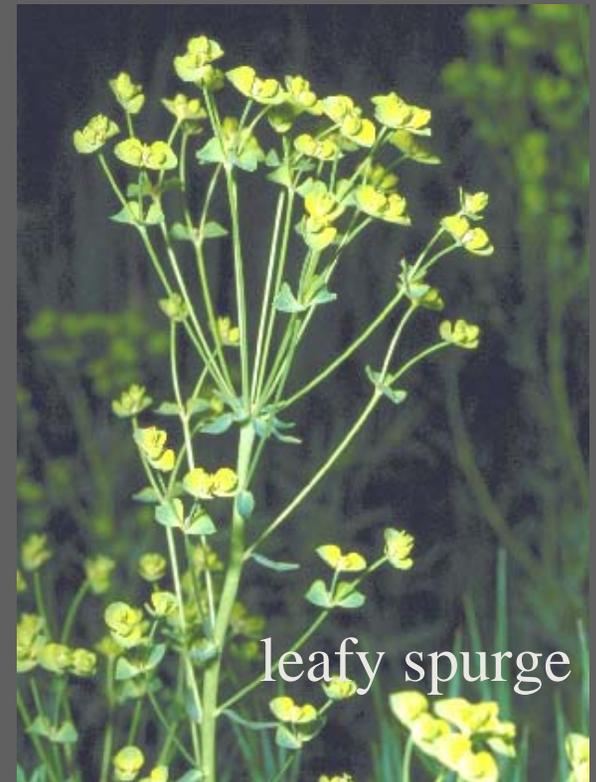
- ▣ Over 500 noxious weed species

- High potential for ecological and/or economic harm
- Overly aggressive, difficult to manage, parasitic, or poisonous

- ▣ Most not native to USA

- ▣ See the INVADERS database:

<http://invader.dbs.umt.edu/>



leafy spurge

Why Do You Care?

- ⇒ Impacts to wildlife, native plants;
 - ▣ Food web based on native plants
- ⇒ Economic impact:
 - ▣ \$15 billion ag, \$5 billion non-ag
- ⇒ 17 million infested acres, western US
 - ▣ Loosing 4,600 acres per day
- ⇒ Leafy spurge in North Dakota causing subdivision



water hyacinth

About the Publication

Backcountry Road maintenance & Weed Management explains why there's a problem and what can be done.

- ⇒ How plant biology assists weed spread
- ⇒ How road maintenance encourages weeds
- ⇒ Strategies for managing weeds
- ⇒ Minimizing weed spread
- ⇒ References, web and print resources

Plant Biology & Weed Spread



knapweed

- ⇒ Disturbed Ground
- ⇒ Nutrients
- ⇒ Seed Transport
- ⇒ Seed Banking
- ⇒ Vegetative Fragments
- ⇒ Soil Shading



Yellow Hawkweed Complex

⇒ Disturbed Ground

- ▣ Weeds are early successional species that prefer highly disturbed sites
- ▣ Roads are continually disturbed sites

⇒ Nutrients

- ▣ Weeds exploit soil microbial activity encouraged by mixed soil layers from road maintenance

➔ Seed Transport

- ▣ Vehicles transport weed seeds & parts

➔ Seed Banking

- ▣ Some weed seeds have hard protective skins and can sprout and grow even after lying dormant in the soil for up to 100 years, depending on species
- ▣ Many weeds produce huge quantities of seeds



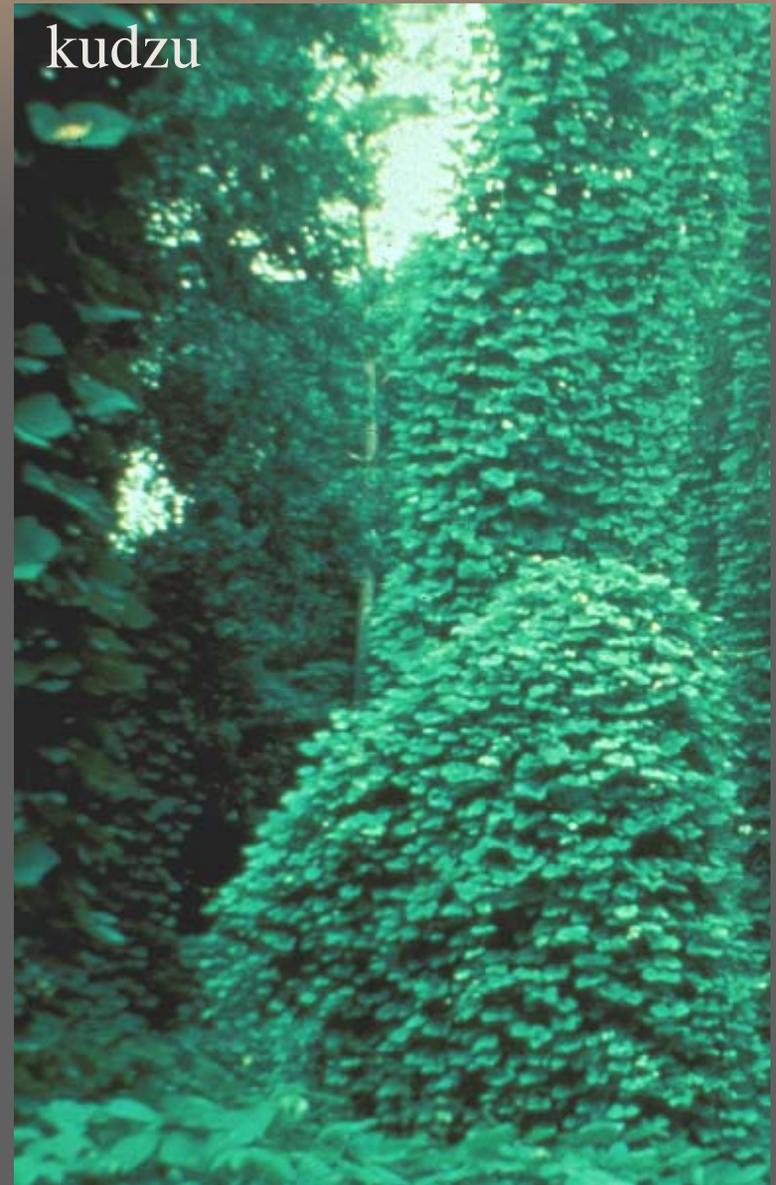
yellow star thistle

➔ Vegetative Fragments

- ▣ Plant root fragments, runners, and stem fragments spread during maintenance can grow into new weeds

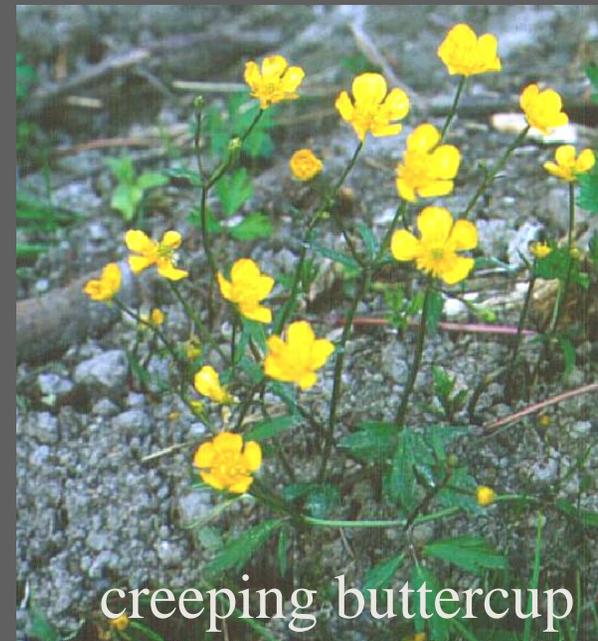
➔ Soil Shading

- ▣ Most weeds like sun and don't colonize shady areas as much as sunny areas



Road Maintenance and Weeds

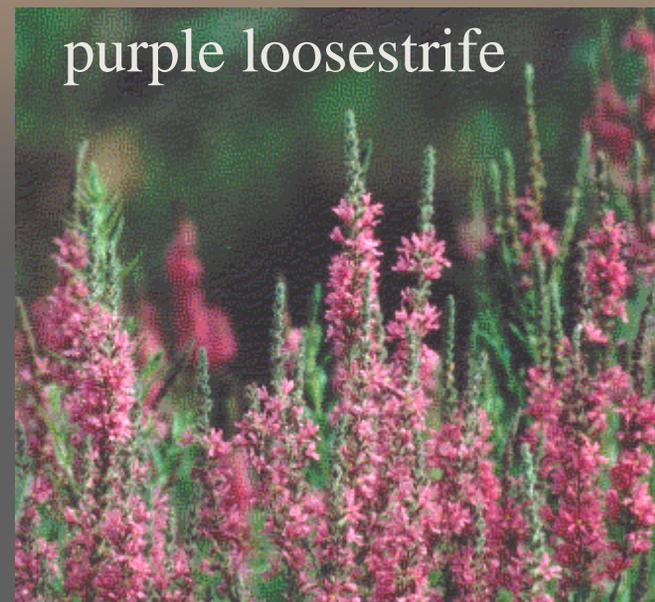
- ⇒ Equipment transports weed seeds and parts
- ⇒ Soil and existing vegetation are disturbed
- ⇒ Seeds and weed fragments move with road surface material during grading and other work
- ⇒ Material stockpiles are often infested with weeds



creeping buttercup

Weed Management

- ➔ Similar to fighting wildfires
 - ▣ Prevention of infestation is best
 - ▣ Early detection and control or eradication is next best
 - ▣ If weeds are well established, contain and control
 - Use integrated weed management techniques
 - Treat spot infestations outside main area aggressively
 - ▣ Control linear roadside infestations before they cover large blocks of land



Minimizing Weed Spread

- ⇒ Best Management Practices
- ⇒ Planning and Personnel
- ⇒ Minimize Transport Within Road Corridor
- ⇒ Minimize Transport From Infested to Uninfested Areas
- ⇒ Maintain Desirable Species
- ⇒ Minimize Soil Disturbance



➔ Best Management Practices

- Northern & Intermountain Regions have supplements to FS Manual requiring Best Management Practices for Noxious Weeds:
<http://www.fs.fed.us/im/directives/field/r1/fsm/2000/2080.doc>
- Recommend all units adopt and follow similar direction

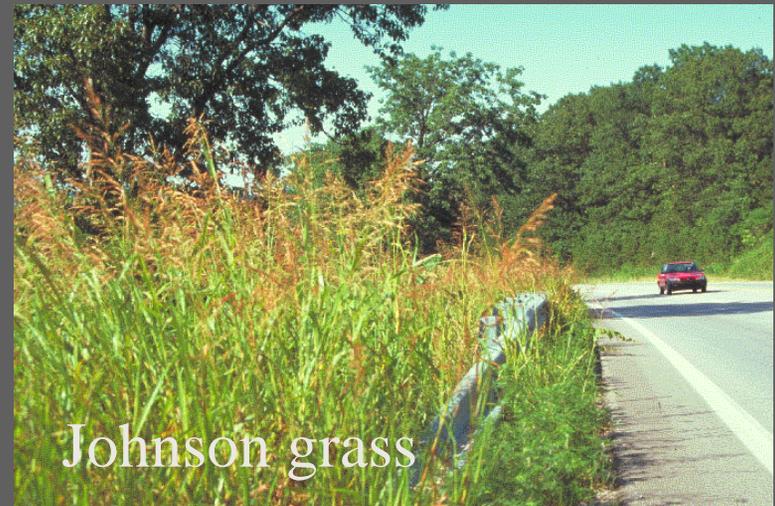


➔ Planning and Personnel

- ▣ Inventory & record infestations so road work can be designed for weed mitigation
- ▣ New invader weeds get high priority
- ▣ Train road maintenance personnel to identify, mark, and report weeds
- ▣ Use weed crew personnel to assist with road maintenance as scheduling and skills allow
- ▣ Specify herbicide use in planning documents – planning personnel should be familiar with weed mitigation techniques and requirements

➔ Minimize Transport Within Road Corridor

- Use only certified weed-free material sources – inspect and record annually and before use
- For established weeds, consider biological control
- Include weed control in timber sale road appraisal
- Control weeds near roads
- Control weeds for several seasons before major road maintenance or reconstruction





- ➔ Minimize Transport from Infested to Uninfested Areas
 - ▣ If possible, postpone work until weeds eliminated
 - ▣ Work from uninfested to infested areas
 - ▣ Wash vehicles before entering public lands and after work is complete – use FS-developed mobile power washer (publication 0234-2836-MTDC) or other

➔ Maintain Desirable Species

- ▣ Raise mower height to retain desirable grass and keep soil shaded
- ▣ Limit brushing and mowing to minimum road distance, maximum height to meet safety objectives
- ▣ Reseed – use rhizomatous grasses on shoulders, certified weed-free seed, appropriate for climate
- ▣ Fertilize desirable vegetation but not weeds – or use targeted herbicides
- ▣ Grade when desirable vegetation least vulnerable
- ▣ Consider paving or soil stabilizers to reduce grading

➔ Minimize Soil Disturbance

- ▣ Evaluate need to grade rather than using set schedule – minimize frequency
- ▣ Use weed-free fill rather than borrowing from infested stockpile, shoulder, or ditch
- ▣ Keep blade above surface when removing fallen rock
- ▣ Consider paving or soil stabilizers to reduce grading, but don't use lignite or other stabilizer that tends to kill existing grasses and forbs



What Else Needs to be Done?

- ⇒ More research on the relationship between road maintenance and noxious weed dispersal
 - ▣ Include species, distance, quantity transported during each maintenance task
- ⇒ Consider developing grader-mounted mechanism for “last pass” seeding of road shoulders

References, Web Resources, etc.

- ⇒ See publication 0371-2811-MTDC,
Backcountry Road Maintenance
and Weed Management
 - ▣ Order from USDA Forest Service Missoula
Technology & Development Center, 406-329-3978
 - ▣ On the web at
[http://www.fs.fed.us/t-d/php/library_card
.php?p_num=0371%202811](http://www.fs.fed.us/t-d/php/library_card.php?p_num=0371%202811)