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Guidelines for coordinated management of noxious weeds: Development of weed management areas

(*Article begins on the following page.)

Guidelines for Coordinated Management of Noxious Weeds: Development of Weed Management Areas

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

NATIONAL PARK SERVICE
Department of the Interior

Guidelines for Coordinated Management of Noxious Weeds: Development of Weed Management Areas

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Some graphics in this document from “Selected Weeds of the United States,” Agriculture Handbook No. 366, March 1970. Drawings by Regina O. Hughes.

Section I

Introduction and Acknowledgments

Weeds in the Western States

Undesirable invasive plants continue to spread into uninfested areas in the western United States. Invasive plants and noxious weeds infest native plant communities in increasing numbers throughout this area.

Public concern about the harmful effects of uncontrolled weeds continues to increase. Unacceptable levels of weeds adversely affect crop and forage production, wilderness, wildlife habitat, visual quality, recreation opportunities, and land value. Land managers face a serious challenge to develop and conduct effective programs for controlling the spread of noxious weeds.

The western states encompass over 890 million acres that include national forests, national parks, federal reservations, national wildlife refuges, Bureau of Land Management and Bureau of Reclamation land, state lands parks, and private lands.

This area includes fourteen contiguous states — Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming. World renowned for its renewable resources, this area offers outdoor recreation opportunities, scenery and geologic features, and attracts millions of people annually.

These guidelines provide a unified effort in developing a weed management program, including public awareness; a prevention program; a common inventory, mapping, monitoring, and reporting procedure; and methods of integrated weed management. An overall management plan and specific action plans can be developed for logical units of land within specific **Weed Management Areas** (WMAs).

Any management area with common characteristics can be divided into WMAs. These WMAs become the land unit for the development of a comprehensive Noxious Weed Management Plan. These areas replace jurisdictional boundaries in favor of natural boundaries that facilitate cooperation, coordination, and implementation of effective integrated weed management programs for noxious weeds. Local County Weed Districts are an important driving force in developing weed management programs for these areas.

Section I

Use of the Guidelines

These guidelines are for use by local landowners and land managers when developing weed management programs. They are designed to be used as a working document and can be put into a three ring binder with additional information specific to your area added to the appropriate sections.

Acknowledgments

Much of this document has been adapted from the *Guidelines For Coordinated Management Of Noxious Weeds In The Greater Yellowstone Area*. That document has been used successfully in many areas and is being made available to a much wider audience through this revised document. Personnel from the Bureau of Land Management, Forest Service, National Park Service, Montana Department of Agriculture, Idaho Department of Agriculture, Park County, Wyoming Weed & Pest Control District and Ag West Communications developed the *Guidelines for Coordinated Management of Noxious Weeds in the Greater Yellowstone Area* and were instrumental in this adaption. A special thanks to Lewis H. (Buck) Waters and Jimmy Pribble (both retired BLM) for their input into this document. Thanks to Celestine Duncan, Weed Management Services, Helena, Montana, for input in the mapping section.

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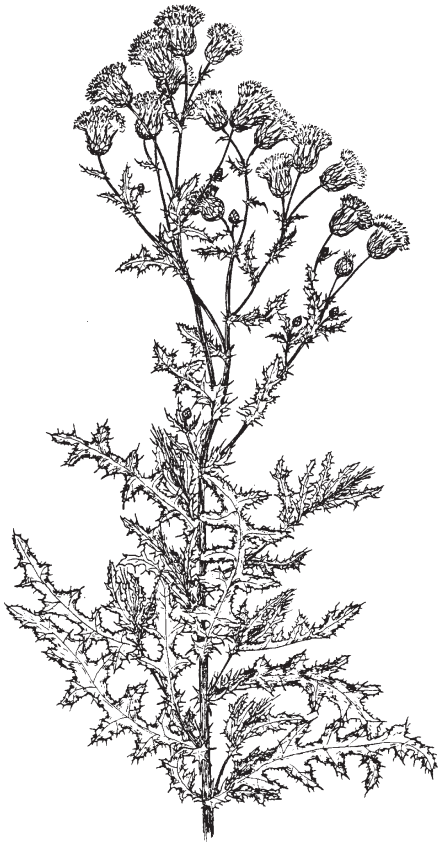
Section II

Purpose and Organization of Weed Management Areas (WMA)

PART ONE
Purpose of Weed Management Area

Weed Management Areas (WMA) are distinguishable zones based on similar geography, weed problems, climate, or human-use patterns.



The purpose of creating a WMA is to facilitate cooperation among all land managers and owners to manage a common weed problem in a common area.

The goal of a WMA is to prevent the reproduction and spread of weeds into and within the WMA. The formation of a WMA replaces jurisdictional boundaries that are barriers to weed management programs in favor of natural or more logical boundaries that facilitate weed management and control. A WMA is an area in which one agency/landowner's weed control success will be largely determined by the cooperative efforts of other agencies or landowners in the area. WMA's have similar characteristics such as geography, weed problems, climate, common interest, or funding support. Boundaries may be a watershed or other geographic feature and eliminate jurisdictional barriers.

How the WMA Concept Works

The WMA enhances and unites individual ownerships or jurisdictions that form the land unit for mapping, planning, monitoring, and conducting weed programs. Cooperators in a WMA jointly prioritize weed management efforts based on species or geographical area. Cooperators then work together to manage the weeds within the WMA.

It is possible that most or all of the control effort within the WMA will take place on land managed by one agency/landowner. Based on the species or geographic priority, it may be several years into the plan before control actions take place on some jurisdictions.

As an example: If one county has a rapidly expanding leafy spurge infestation which threatens a neighboring county, whose only weed problem is common mullein in an abandoned gravel pit, it may be beneficial to both counties to pool their resources to control the spurge before going after the mullein. If individual landowners desire to continue to do their own control work, a joint planning, analysis, and monitoring program would still be efficient; and individuals might alter their priorities to coordinate the control of an infestation that spans a common boundary.

A WMA may be weed-free and organized to quarantine an area from importation of weeds. The landowners may agree not to allow the

use of forage from outside areas. They may agree to require that any construction, utility, and logging equipment coming into the area be weed-free.

Always include county weed boards in the WMA even if only federal land is involved. The WMA does not supplant the county weed board, but ensures that cooperation extends across county, state, and federal boundaries.

Advantages of cooperating in a Weed Management Area include:

1. It encourages cooperators to plan through the problem to its successful resolution.
2. The plan results in the greatest good for the entire WMA in the long run. **Planning establishes priorities.**
3. Cooperators can locally prioritize and give emphasis to species that are a particular threat within individual WMAs.
4. The designation of a WMA by diverse individuals and agencies focuses attention and provides a united effort to state and federal legislators. It also communicates to the general public the seriousness of weeds by increasing their awareness of the weeds and the need to contain or prevent infestations.
5. A WMA pools talents and resources. For instance, WMAs enable one agency to contract with another for weed control.
6. Under the WMA plan, a landowner or land manager can address the problem of weeds spreading from neighboring land before the damage occurs.
7. A WMA provides a channel for communication within the WMA.
8. It reduces the risk of damage by control actions to water, crops, threatened & endangered (T&E) species, etc.
9. The formation of a WMA increases the effectiveness of weed management by basing control efforts on biological and geographical factors rather than legal divisions.
10. Designation of a WMA helps secure funding or identifies a method for funding.
11. The creation of different management zones within the WMA fits the most effective and environmentally sound weed management and control practices to each zone.
12. A well-written and implemented plan within the framework of a WMA addresses the following potential concerns:

The WMA plan results in the most effective weed control for the entire WMA over time. Planning establishes priorities.

a. A private landowner or agency may relinquish some individual autonomy. Everyone gains efficiency and increases their ultimate success by participating in a WMA.
b. Individual or agency priorities may differ from the WMA's priorities. Individual priorities are usually best served and success is greatest when managed within the context of the entire WMA's priorities.
c. The weed prioritization and planning process created by a WMA ensures that one jurisdiction or agency cannot dominate.
d. By involving representatives from all diverse interests within a WMA, residents of one jurisdiction — a county, for example, — better understand why their weed treatment crews spend time working in a different county or on other agency land.

PART TWO
How to Organize a Weed Management Area (WMA)

I. Initiate Organization

A. Any agency, weed district, or individual may take the lead towards initiating a WMA.
B. Consult with weed management specialists for ideas.
C. Initiate a planning (or inter-agency) organizational meeting.
   1. Invite representatives from all management agencies within the perspective WMA.
   2. Invite principal landowners or representatives from key landowner groups (sports clubs, wildlife organizations, stockgrowers, conservation district, etc.).
   3. Keep the number of representatives from each agency or local interest to a minimum.
   4. To assure good attendance by the agencies and individuals involved, set the time and place of meeting to compensate for seasonal work schedules, community-school events, and holidays.
D. Select a steering committee to initiate the next stages of organization.

Section II

Objectives of Initial WMA Organizational Meeting(s)

The following objectives can also serve as part of the agenda for your organizational and public meetings.

A. Establish clearly-defined boundaries coordinated with other WMAs.
   1. Boundaries of a WMA may be created according to: watersheds, topography, weed species, land usage, and/or rights-of-way.
   2. Identify preliminary special management zones within the WMA such as:
      a. Aquatic areas.
      b. Threatened & endangered species habitat or species of special concern.
      c. Recreational/special use areas.
      d. Transportation corridors — rights-of-way may need to be excluded from the WMA or treated as a separate WMA.
   3. Size of WMAs may be determined by land area or by the number of cooperators. Both should be workable for the organizers and cooperators.
      a. A larger land area may be identified when a few cooperators have large acreages.
      b. Smaller land areas may be identified as WMAs if there are many cooperators with smaller acreages.

B. Select a leader/chairperson.
   1. Select the leader based on the abilities, interest, and qualifications, not on agency bias.
   2. Allow the chairperson access to office facilities and personnel to ensure completion of communications and reports.

C. Review funding and available resources.
   1. Discuss available funding and establish accounting guidelines.
   2. Determine manpower and time capabilities of individuals and agencies available within the WMA.
   3. Develop a plan to obtain additional funding if necessary.

D. Obtain appropriate state weed laws and agency weed regulations and polices. (*See Appendix 2 & 3.*)

E. Set date, time, and place for public meeting to allow input from all individuals within the WMA.

F. Set target dates for completion of different steps of the planning process.

Section II

II. Initial Assessment by WMA Steering Committee

A. At this stage, accurately evaluate the level of noxious weed awareness, the existence or status of noxious weed mapping and inventory, and prevention and control programs in the weed management area.

B. A second meeting of the steering committee may be required. This step in the process is critical to determine what is known and what information is missing.

C. Important reasons for the initial assessment at this stage include:

1. This assessment helps predict the expected level of involvement of the residents, landowners, and other agency personnel in weed management planning and action process.
2. The results of this assessment can determine initial weed management **objectives**. For instance, rather than treat weeds first, it may be most effective to establish awareness and prevention programs first.
3. The assessment can provide answers to questions that may arise at the first public meeting. Your credibility and the potential value of an established WMA increase when you can correctly and concisely answer such questions as:
   - Why is weed management important?
   - How do weeds impact recreation, wildlife, fish, forestry, etc.?
   - Do we have a weed problem and what does it cost us?
   - Can we keep weeds out or prevent their spreading in the WMA?
   - What weed species predominate in the WMA?
   - Where do weed infestations exist in the WMA?
   - If there currently a weed control program established?
   - Is there a weed prevention program in place?
4. Once you know the level of awareness in the WMA, the public meeting guidelines discussed in Appendix 5 can be utilized to collect additional needed information.

III. Details of A Public Meeting

A. Use all forms of publicity to inform everyone who might be affected by or interested in the WMA.

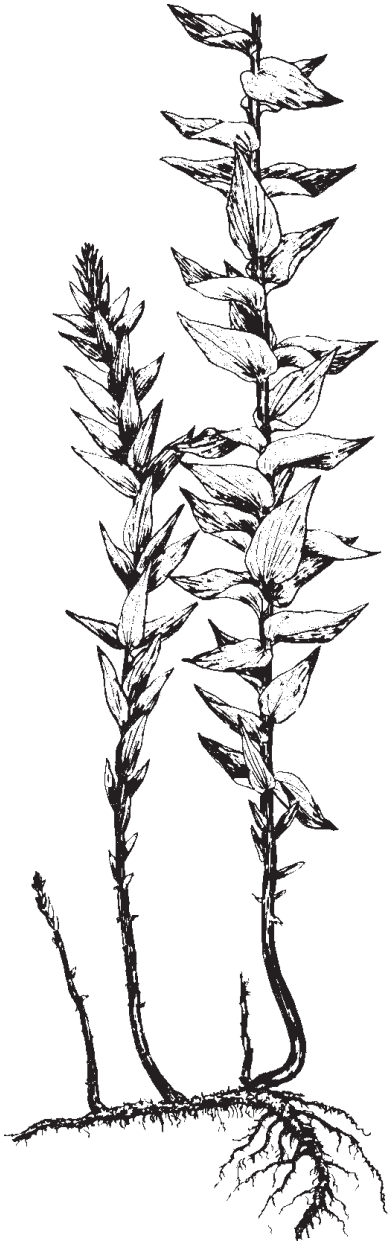
B. Use a model for conducting a public meeting. (*See Appendix 5.*)

C. Ask the attendees to complete a WMA Questionnaire. (*See Appendix 6.*)

D. Review the designated area coordinated weed management concept with the participants.
E. Explain the planning process, mapping, WMA concept, and other information in the planning meeting.
   1. Be willing to modify initial objectives based on input from the public meeting.
   2. Because of various barriers, the proposed boundaries of the WMA may need to be changed.
F. Identify weed problems.
   1. Consider whether weed problems are a localized concern or a threat to the entire WMA.
   2. Accurately identify the weeds of concern.
   3. Provide a large scale map of WMA and use it to record infestations.
G. Clearly state that integrated weed management practices are required in the WMA. (*See Section VI*.)
H. Record all ideas for future consideration.
I. Make adjustments in the membership of the planning/working committee.
J. Obtain mailing addresses and mail results of WMA Questionnaire and Management Plan to attendees.

IV. Writing a WMA Plan, including development of a long-term Management Plan and Annual Operating Plan. (*See Section IX.*)

A. The planning/organization committee drafts the WMA Management Plan after the public meeting.
B. Review the draft with all interested individuals before finalizing the Management Plan and development of the action plan.
C. Allow for changes or modifications in the Management Plan as conditions change. (*See Section IX*.)



Section III

Awareness, Education and Training

Awareness of what noxious weeds are and the problems they cause will help the general public to understand why a long-term weed management program is important. Education on the impacts of noxious weeds to critical flora and fauna of the area is an important facet of any long-term weed management plan developed.

All federal, state, local agency personnel, and private landowners involved in the management programs must have proper training, licenses, and certification in the correct use of weed control techniques. The primary groups to be targeted by an awareness, education and training campaign are: WMA residents, visitors, and federal, state, and local land management agency staff, including permanent and seasonal.

Invasive plants pose a serious threat to native vegetation. The invasive and competitive nature of plants that define noxious weeds make it imperative that personnel working in the area are familiar with the most important noxious weed species and the damage they cause.

Education Awareness & Objectives

Informational brochures, educational and public awareness materials, and training materials may be available at the state level or through the cooperative extension service.

Each Weed Management Area steering committee should obtain all information on the weed management and awareness program available. Information can distributed through various cooperators within the WMA such as:

- Local Weed Districts
- Public Park Entrances and Visitor Centers
- Forest Service and BLM Offices
- Campfire and Trail Programs
- County Cooperative Extension Offices
- Area Chambers of Commerce
- Local Tours
- Local Environmental Organizations
- Local Wildlife Organizations
- Schools and Service Organizations
- County Fairs and Trade Shows

Section III

I. Awareness and Education Objectives

A. Develop general public awareness programs outlining problems caused by noxious weeds, including:
   1. Damage to wildlife habitat and crop and forage production.
   2. Health problems associated with weeds, including skin irritations and allergies.
   3. Impacts on scenic and recreational values.

B. Utilize local, state and federal resources and materials. *(See Appendix 14.)*

C. Develop and maintain demonstration plots which would:
   1. Be in areas frequented by visitors.
   2. Illustrate the impact of different management techniques and the level of control obtained in infested areas.
   3. Include information on:
      a. The effectiveness of biological weed control (the establishment of an insectary would be beneficial).
      b. The impact of pulling and mowing noxious weeds.
      c. Herbicide treatments showing grass and forb response, including information on safe handling of herbicides, actual amount of herbicide applied to the area, and other environmental concerns.
      d. Benefits of revegetation with competitive desired species.
      e. Explanation of why each method of control is an acceptable choice for that specific area.
      f. Benefits of cultural control methods (use of domestic animals, etc.).

D. Develop annual tours to:
   1. Update local area residents on the progress of noxious weed management within the WMA.
   2. Update agency personnel on the results of management programs.

E. Develop and maintain displays and programs on selected noxious weeds.

F. Public entities should:
   1. Assign at least one staff person to administer weed management plans for that agency and for the WMA. This person should have specific training in weed biology and integrated control systems, with formal education (such as a weed management short course) or specific training from qualified experts.

2. Establish local staff programs to identify all important weed species and to report infestations discovered to the lead staff member. Special incentives (such as extra compensatory time) to individuals who submit this information could be used to encourage participation by general staff members.
3. Involve the media and press.

II. Training Objectives

A. Develop cooperative training programs to educate and inform all participants in the WMA about the latest Integrated Weed Management options and technologies. These programs should include all land managers within the WMA, including state and federal agency land managers, as well as private landowners.

B. Develop a training program in cooperation with the Cooperative Extension Service and other agencies that ensures that all weed management techniques follow approved procedures, including proper use of all herbicides and calibration of application equipment.

C. Implement a regular education and training program to ensure that all cooperators maintain proper pesticide applicator certification throughout the life of the project.

D. Sponsor regular training and update programs for all WMA cooperators. Resources to provide training can include: weed district personnel, county extension agents, and university and agency personnel. Training should include:
   1. Weed identification.
   2. Integrated weed management concepts. (*See Section VI*.)
   3. Proper selection of the most effective weed control techniques.
   4. Implementation of control techniques.
   5. Effective monitoring techniques. (*See Section VII*.)
   6. Personal protective equipment.
   7. Proper pesticide storage.
   8. Application equipment calibration.
   9. How to develop a weed management area. (*See Section II*.)
   10. How to develop a Management Plan and Annual Operating Plan. (*See Section IX.*)

Section IV

Prevention and Early Detection

I. Early Detection and Eradication Requirements

Prevention, early detection, and eradication of newly introduced invasive weed species is the most economical means of weed management. Prevention is best accomplished by ensuring that weed seed or vegetative reproductive plant parts are not introduced into an area. Common methods of weed introduction include:

- Contaminated seed, feed grain, forage, straw, or mulch;
- Movement of uncleaned equipment or machinery from a weed contaminated area. This includes equipment or machinery used for or by construction, recreation, agriculture, forestry, oil and gas exploration and production, utility companies, mining, and tourism;
- Animals (domestic and wildlife) that may have viable weed seed present in their digestive tract or attached to their hair or wool;
- People moving noxious weed plant parts with viable seed, planting noxious weed seed for ornamentals, or scattering contaminated wild bird seed;
- Allowing noxious weeds to produce seed along waterways and roadways; or
- Using gravel, roadfill, or top soil contaminated with noxious weed seed or vegetative reproductive plant parts.

Early detection is identifying and documenting newly introduced weed species into an area.

Eradication is employing appropriate management methods to totally remove infestations, including the reproductive potential of a weed species in an area.

A. Develop early detection methods and eradication programs for new invaders. This would include education and awareness programs where visitors and users of the area assist managers in locating and identifying new invader weed species.
   1. New invaders can be identified with input from state cooperative extension personnel, state departments of agriculture, and through the Invaders Database. (*See Appendix 14.*)

B. Provide follow-up inspection to verify the potential of new invader weed species. Initiate an eradication program if new invaders are confirmed.

Section IV

II. Prevention Requirements

Following are specific recommendations for the prevention and early detection of the spread of noxious weeds. More stringent guidelines may be necessary in certain parts of a WMA. Example: within National Parks or wilderness areas. (*See Section X - "Certified Weed-Free".*) See *Appendix 1* for samples of testing programs, contract clauses, and closure statements that apply to the prevention requirements below.

A. Ensure that seed, feed grains, forage, straw or mulch are free of weed reproductive plant parts and meet standards set in the WMA. *(See Appendix 4.)*
   1. Seed.
      a. Seed should be certified and tested for noxious weed seed at a state seed laboratory.
      b. Develop clauses for revegetation plans of disturbed sites that include reseeding with weed-free seed.
   2. Mulches.
      a. Develop contract clauses that do not allow any seed or reproductive plant parts present in mulch.
      b. Certify mulch samples to meet area Certification Standards prior to any placement of the mulch in the area.
   3. Certified weed free forage.
      a. Limit all public lands in the WMA to the use of processed or certified weed-free forage.
      b. Develop stipulations that will not allow any transportation of weed contaminated forage or processed feeds through the WMA.
      c. Develop or adopt certification standards or a quarantine program to ensure the production and use of weed-free forage and other agronomic crops in the WMA.

B. Encourage proper management of livestock used in or trailed through the WMAs to slow noxious weed spread.
   1. Use only feeds meeting area certification standards. *(See Appendix 4.)*
   2. Livestock used for the management of weeds should be held in a weed-free feed environment a minimum of 96 hours prior to moving them into the WMA. This allows the animals to clean their digestive tracts of weed seeds.

C. Ensure that equipment or vehicles are free of weed reproductive plant parts prior to movement into the WMA. Develop standards and follow proper guidelines to prevent the introduction of weeds by equipment or machinery. These may include vehicles used for:

Agriculture/Livestock
Commercial and Private Construction
Fire Suppression Measures
Geothermal Exploration/Production
Irrigation Ditch Companies
Mining and Quarries
Oil and Gas Exploration/Production
Range and Wildlife Improvement Projects
Recreation/Tourism/Hunting/Fishing
Right-of-way Construction/Maintenance
Timbering and Forestry
Utility Construction/Maintenance
Off Road Vehicles (ATV, motorcycles, etc.)

1. Develop cooperative weed-prevention programs with the suppliers of sand, gravel, top soil, and other construction materials to ensure that these materials are free of weed seed or reproductive plant parts before quarrying, mining and/or transport within or into the WMA.
2. Develop stipulations in the contracts that do not allow any weed seed present in the gravel or other material.
3. Develop clauses in timber sale contracts that set standards on revegetation, weed-free seed and mulch, operation practices, etc.

D. Educate people in the wide variety of seed transport methods, such as:

- Do not pick and transport weeds or weed plant parts, such as flowers.
- Check clothing and pets after walking through weed-infested areas for weed seed.
- Clean vehicles of mud and plant parts after driving through infested areas.

E. Work with the county and city planning staff and zoning committees to include consideration for noxious weed management when developing or approving subdivision plans, special use permits, or new leases.

F. Develop an Integrated Weed Management program whereby all landowners within the WMA work in a cooperative program that prevents weeds from producing seed.

G. Develop or adopt weed-awareness programs for local residents, fishing and hunting license-holders, the visiting public and staff members of the different county, state, and federal agencies. (*See Section III*.)

H. Develop or adopt cooperative agreements with enforcement agencies to assist in compliance with weed free forage certification standards.

III. Fire Suppression and Site Rehabilitation Plans

A. Develop a plan to minimize disturbance from fire suppression activities.
   1. These activities result in disturbance of land surface by vehicles, foot traffic, pack animals, chemicals, helicopter bucket drops, bulldozers, fireline explosives, pumps, and handtools.
   2. Disturbance can occur in remote areas that would not otherwise be subject to the introduction of weeds and where infestations are not likely to be detected following the fire.
   3. When fire rehabilitation practices require reseeding firelines or burned areas, certified weed free seed should be used.

B. Understand the direct effects of fire on weed species in the area.

C. Develop a plan before fires occur to mitigate the impacts of noxious weeds during and after fire suppression activities.
   1. Review weed inventories and identify pre-existing problem areas to assist in prioritizing control efforts. If no inventory exists, scheduling weed surveys of the burned area and it's perimeter is critical to control and contain any pre-existing infestations.

Best Management Practices to Control Weeds Following Fire

1. Use the best integrated management approach to control noxious weeds *(See Section VI.)* Speed is critical to stop weed invasion so the plan should be implemented before the first growing season (or as soon as possible).
2. Approve noxious weed control that utilize the most cost-effective means of providing adequate watershed cover where competition from noxious weeds would render emergency revegetation of firelines and campsites ineffective. This includes setting standards in the fire plan that only weed-free seed and mulch are used in revegetation programs.
3. Timely seeding of a cover species to rapidly occupy disturbed sites will minimize impacts of noxious weeds and help hold the soil until native plants recover.
4. Use drilling or other effective revegetation techniques to gain a high rate of plant establishment.

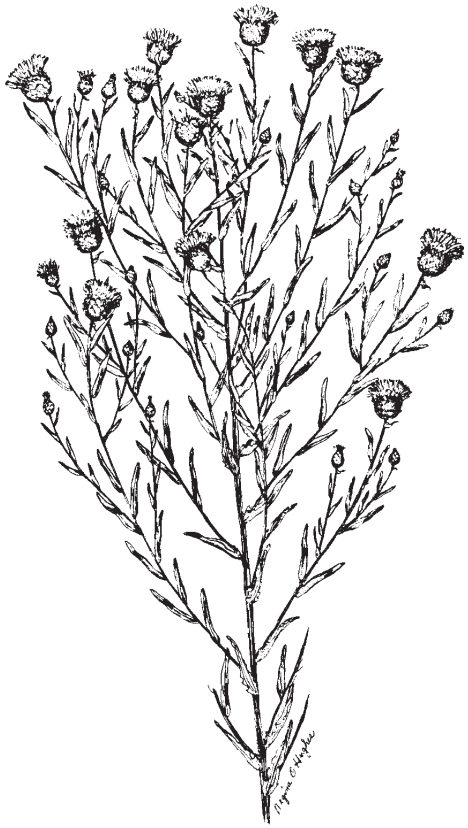
Section IV

D. To prevent the invasion of weeds into burns:

1. Consider weed prevention as part of daily fire- fighting operations.
2. Consider rehabilitation as part of the suppression effort. The planning section should address prevention of weed invasion in the rehabilitation plan.
3. Emphasize light-hand tactics to minimize the amount of soil disturbance.
4. Require the cleaning of equipment and pack animals used on the fireline and in camp. This includes the development of proper cleaning methods of all equipment to be used on fires to reduce the spread of weed species.
5. Avoid staging equipment and resources in noxious weed infested areas.
6. Delineate noxious weed infested areas and erect a barrier to prevent spread from those areas.
7. Consider the ecological and economical costs of potential invasion by weeds in the escaped fire analysis and the possible benefits of the contain and confine options. Aggressive suppression may result in the least amount of land disturbed by fireline and camps. The cheapest option will probably result in the least disturbance.
8. Use only seed and mulch that is certified weed- free.
9. Restore firelines using the same material that was removed during construction.
10. Start rehabilitation immediately after fire is out or as soon as possible.
11. Use aircraft rather than pack animals to minimize disturbance.

Section V

Weed Survey and Mapping



The primary objective of weed surveying and mapping is to accurately identify and delineate land with populations of invasive plants or noxious weeds. These surveys allow land managers to predict areas that are potentially subject to weed invasion; to understand the biology of the invasion process and determine means by which weeds spread; to develop, implement, and evaluate weed management plans; to assess the economic impact of weed invasions; and to increase public awareness, education, and weed management efforts.

Weed survey information is collected and compiled into maps showing the distribution and severity of the infestations. Weed monitoring involves repetitive surveys to track weed populations over time. A standardized system of weed surveying and mapping is necessary to provide consistently reliable information that can be compared from year to year.

Additional information on data recording methods, computer mapping systems, the Global Positioning System (GPS), combining data collected by different methods, software compatibility considerations, and digital base layers available for computer mapping can be found in the publication *Mapping Noxious Weeds in Montana*, Extension Bulletin 148, 1998, available from the Montana State University Cooperative Extension Service Mailing Room (406-994-3273).

Objectives of a Weed Survey and Mapping System

To collect information on weed biology and ecology, including location and acreage infested, growth requirements, and spread patterns and rates.

Use of data for developing weed management goals and objectives.

Establishing a historical database.

Evaluation of the progress of a weed management program.

Increase public awareness and support for the program.

I. Survey Field Methods

A. Factors Influencing Survey Detail.

1. Management objectives of the WMA: Surveys can be used to develop baseline information for regional databases, county-wide inventories, local cooperative weed management areas, and eradication programs.

2. Time constraints of personnel involved in the WMA.
3. Funding and resources of WMA cooperators.
4. Terrain of the WMA.

B. Level of Survey: The level of weed survey utilized is based on the objectives of the weed inventory.

1. Regional and planning weed inventories (Level III): These are reconnaissance surveys used to develop general planning guidelines over large acreages.
   a. This is the most effective survey for initial planning in a WMA.
   b. Utilize existing information, including interviews with cooperating landowners, aerial surveys, or "windshield" surveys.
   c. Hand-drawn infestations boundaries on $7^1/_2$ to 15 minute topographic maps are acceptable maps for this level.
   d. Digitize data into a computer mapping system such as Arc View or County CAD.
   e. This survey is the most economical but the overall level of accuracy is reduced.
2. Local cooperative projects and county-wide inventories (Level II): These surveys are of moderate detail and accuracy.
   a. This survey level is best for development of containment and control projects. It is suggested for developing specific management plans within the WMA.
   b. Hand-drawn infestations boundaries on $7^1/_2$ minute (1:24,000 map scale) are acceptable maps for this level.
   c. Digitize data into a GIS database such as Arc View or CAD mapping system.
   d. GPS is not necessary for Level II mapping.
   e. The costs associated with this survey are of a moderate level.
3. Eradication program inventories (Level I): These surveys are useful when a high level of accuracy and detail is required.
   a. This survey is most effectively used for the detection of newly invading species or to develop weed eradication programs.
   b. Survey methods are based on grid systems.
   c. GPS and GIS systems are highly recommended.

Visual scan of the area (Level III)
Perimeter mapping method (Level II)
Grid mapping for detailed inventories (Level I)

d. This survey is most expensive in terms of both time and dollars.

C. Mapping Hints.
1. Study aerial photographs, topographic maps, and historical weed data to determine limiting terrain and areas where weeds have been located in the past.
2. Identify "high probability" areas where weed infestations are most likely to start, such as trailhead areas, high traffic areas, disturbed sites, etc.
3. Identify reported weed infestations on the map.
4. Delineate boundaries of the inventory area.
5. Be realistic about what you can accomplish.
6. Conduct the inventory when weeds are most visible, during full flower or in the fall.
7. Don't inventory more than two species at a time unless infestations are very small and isolated.
8. Develop a search pattern based on the objectives of the inventory.

D. Equipment Needs.
1. Method of transportation, based on area: 4x4 vehicle, ATV, horses.
2. Maps.
3. Clipboard and color pencils.
4. Two-way radio.
5. Fishing or photography vest.
6. Binoculars.
7. GPS unit (optional).

E. Summary.
1. Follow a standardized mapping procedure that outlines acreage symbols, weed color codes, and cover class (such as the Montana Mapping Standards) that is agreeable to all cooperators in the WMA.
2. Determine the level of inventory necessary to meet weed management goals and objectives.
3. Develop realistic objectives for the inventory based on funding, time, and terrain.
4. Schedule the inventory when weeds are most visible.
5. Keep inventory areas well defined.
6. Keep inventory methods simple.
7. Remember that weed inventories are a continual update process.

II. Mapping Procedures

A. Establish Weed Management Area(s). These areas will be delineated through coordination between county weed dis-

tricts and the WMA cooperators. WMAs are land units that have similar characteristics such as geography, weed problems, climate, or common interest and funding support. Boundaries may be a watershed divide or other geographic feature. This eliminates jurisdictional boundaries that are barriers to effective weed control in favor of natural boundaries that are barriers to the spread of weeds.

B. Complete noxious weed management maps and an inventory of the weeds in the WMA.
   1. Weed survey maps may be created by hand-drawing infestation boundaries on base maps, using a computerized mapping system, such as Arc View or County CAD, or by collecting location coordinates of weed infestations using Global Positioning System (GPS) technology.
   2. When weed infestations are hand-drawn on base maps, USGS 1:24,000 scale ($7^1/_2$ minute series) maps should be used.
   3. In areas where detailed soil surveys have been completed, aerial photographs may be available (contact the Natural Resources Conservation Service for information). Aerial photographs show good detail and can be used to locate your position and draw in surveyed weed infestations.
   4. Aerial photos and maps must be geodetically corrected for weed data to be digitized into a GIS database.

C. Certain features should be common to all noxious weed management maps. Use clear overlays to show additional features. The base maps should show:
   1. Weed infestations by species.
   2. Topographic features.
   3. Man-made features, such as roads, trails, power lines, railroads, irrigation canals, and ditch systems.
   4. Jurisdictional boundaries, such as state lands, federal lands, cemeteries, etc.
   5. Vegetative types and soil types.
   6. Sensitive areas, such as wetlands, distance to groundwater, and threatened, endangered and sensitive species.

III. Infestation Delineation

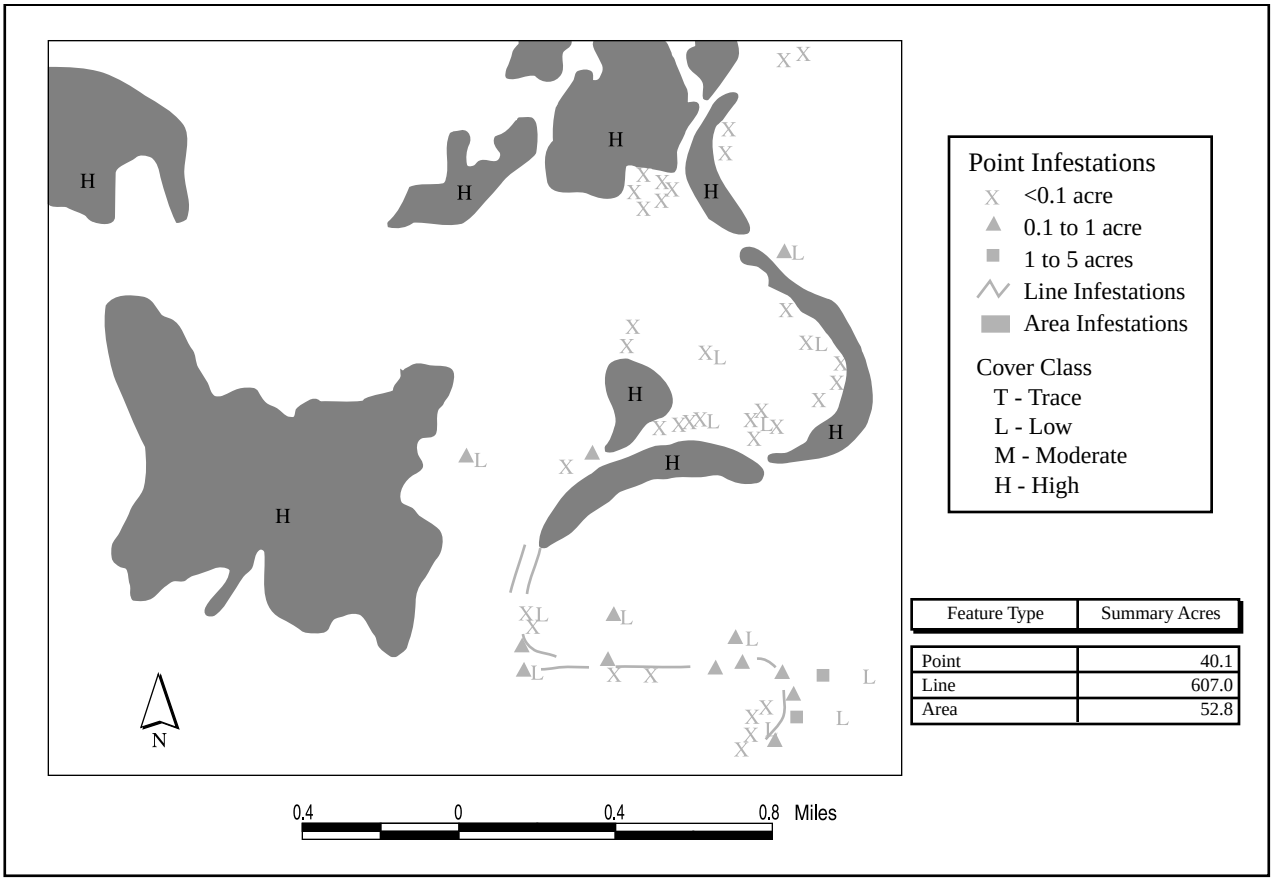
Weeds should be delineated by a standardized method of marking infestation locations, acreage estimates, and level of infestation by individual species.

A. Procedure.

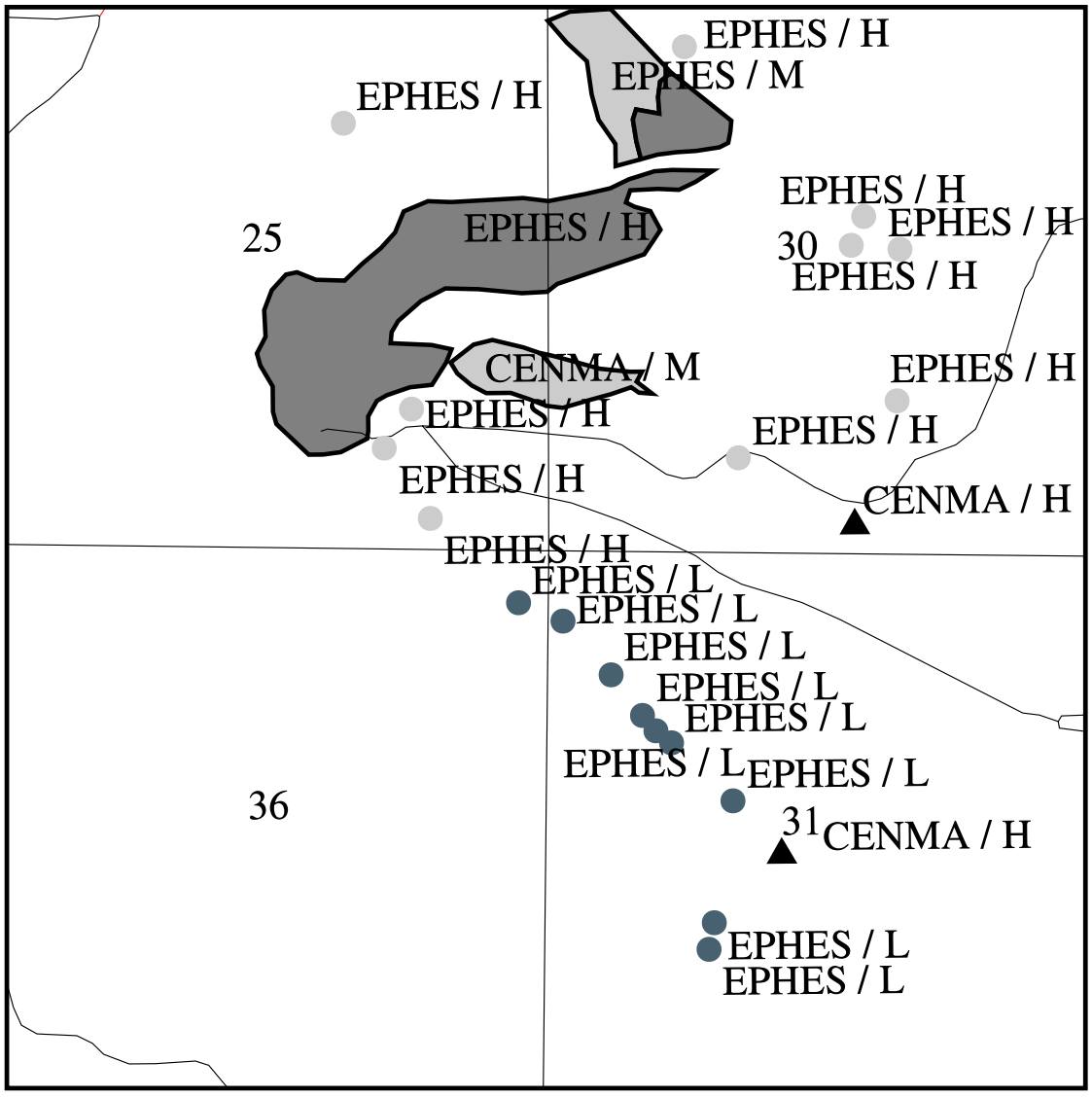
1. Map weed infestations using the following symbols on the mapped area to indicate approximate size and location of the infestation.
   - θ = area was mapped, no weed infestations found
   - x = less than 0.1 of an acre
   - Δ = 0.1 to 1 acre
   - = 1 to 5 acres
   - □ = areas larger than 5 acres should be outlined directly on the map
   - ~ = infestations that follow linear features such as roads and streams should be designated by drawing lines on the map
2. Five letter WSSA codes or other approved designations should be used to indicate the weed species. (*See Appendix 13.*)
3. Color codes may be used on local maps to make infestations more visible. Make sure the color key is included on the map.
4. Use the following symbols to indicate the infestation level (cover class):
   T = Trace (rare): less than 1% cover
   L = Low (occasional plants): between 1 and 5% cover
   M = Moderate (scattered plants): between 5 and 25% cover
   H = High (fairly dense): greater than 25% cover

B. Baseline Information: Weed Database Programs
1. A good inventory of baseline data provides WMA cooperators information to help evaluate weed management options. A list of important elements can be found in *Appendix 9*.
2. Weed database programs can be used to help chart progress in the WMA and assist in planning and budgeting an effective multi-year plan. Databases give uniformity to data entry, better organized information storage, and easy retrieval of data. They can be used to monitor infestation trends and treatment and can be used as a planning tool.
   a. Many land management agencies have developed effective databases to track weed management programs. References can be found in *Appendix 9*.
3. All maps to be digitized should be accompanied by a **metadata form**. See *Appendix 9* for an example.

Section V



Feature Type	Summary Acres
Point	40.1
Line	607.0
Area	52.8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Section VI

Integrated Weed Management (IWM)

Integrated weed management (IWM) is a systems approach to management of undesirable plants. IWM is defined in the Federal Noxious Weed Act as a "system for the planning and implementation of a program, using an interdisciplinary approach, to select a method for containing or controlling an undesirable plant species or group of species using all available methods, including — education; prevention; physical or mechanical methods; biological control agents; herbicide methods; cultural methods; and general land management practices." It is a multidiciplinary, ecological approach to managing unwanted plant species - weeds.

Integrated weed management involves the use of the best control techniques described for the target weed species in a planned, coordinated program to limit the impact and spread of the weed. The control methods selected should be determined by the control objectives for the land, the effectiveness of the control technique on the target species, environmental factors, land use, economics, policy and legal restrictions, practical, economical, safe, and the extent and nature of the weed infestation.

I. Integrated Weed Management Programs

A. IWM programs involve the use of the best adapted control techniques in a well-planned, coordinated, and organized strategy to reduce the impact of weeds.

Inventory, detection and mapping are the first phases of any integrated weed management program. The second phase includes prioritizing weed problems and choosing and strategically implementing control techniques for a particular weed management area. The third phase is adopting proper land management practices as a portion of the integrated program.

The key components of any successful weed management program are sustained effort, constant evaluation, and the adoption of improved strategies.

B. Integrated weed management includes preventing encroachment into land that is not infested, detecting and eradicating new weed introductions, containing large-scale infestations using an integrated approach, and, often, revegetation.

1. Preventing weed encroachment — Preventing the introduction of rangeland weeds is the most practical and cost-effective method for their management. *(See Section IV.)*

2. Detecting and eradicating new introductions — Early detection and systematic eradication of weed introductions are central to integrated weed management. (*See Section IV.*)
3. Containing large-scale infestations — Containment programs restricts the spread of large-scale weed infestations. Studies have shown that containing weed infestations which are too large to eradicate is cost effective because it preserves neighboring uninfested land and enhances the success of future large-scale control programs. Containing a large-scale infestation requires using preventive techniques and applying treatments on the border of weed infestations to stop the advancing front of weed encroachment.
4. Large-scale weed control.
   a. Selection and application of weed control techniques in large-scale control programs depends on the specific circumstances for each portion of the management unit.
   b. Initially, large-scale weed control should focus on range sites with an understory of residual grasses and the highest potential productivity. Suppressed grasses have the greatest chance of reestablishing dominance on these sites. These areas must be spot treated each year to ensure control and minimize reinvasion. In most cases, some percentage of the management unit will require control measures that are repeatedly applied until the weed seed bank and root reserves are exhausted. Control methods used must be based on the biology of the weed.
   c. Next, control efforts should focus on the sites adjacent to those initially treated to minimize reintroduction of the weeds. Usually, large-scale control is most effectively applied from the outside of the weed management unit inward toward its center.

II. Integrated Weed Control Techniques

An accurate assessment of the target infestation will help determine the most appropriate control techniques for the weed species. All control options have some limitations. If complete eradication of a weed is necessary, biocontrol agents are not be a good choice. If soils preclude use of a herbicide, mechanical or biological control may be better choices. (*See Appendix 10.*)

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Collect current control recommendations and Extension publications for each target weed in your WMA and include them with your written management plan.

A. Cultural Control.
   1. Prevention.
      a. Adopt available preventive measures, such as quarantine and closure, to reduce the spread of the weed infestation.
      b. Determine if policy and laws allow for the use of all preventive measures, including local quarantine and closure.
      c. If past management activities have allowed the introduction and spread of noxious weeds, determine how to change management when selecting a treatment method.
   2. Livestock manipulation.
      a. Determine if changes in livestock grazing will effect the target weeds.
         1) Reduced grazing may allow for increased competition from beneficial vegetation or allow more seeds to be disseminated.
         2) Increased grazing may reduce beneficial vegetation or may be used to reduce weed seed source.
      b. Determine changes in movement or type of livestock to reduce or contain the infestation due to movement of weed seeds on or in the animals.
      c. Determine if containing livestock in a weed free area prior to introduction to the area would prevent new infestations.
   3. Wildlife manipulation.
      a. Determine if wildlife or wildlife feeding programs can be managed to reduce weed infestations.
      b. Determine the feasibility of changes in wildlife movement to reduce or contain the infestation due to movement of weed seeds on or in the animals.
   4. Revegetation/Competitive Plantings.
      a. Determine if existing vegetation is adequate for proper restoration or if reseeding is necessary.
      b. Determine if the topography and soil types allow for effective establishment of competitive species.
      c. Select competitive plant species that will reduce the spread of noxious weeds.

d. Consider how soil disturbance activities will affect the spread of weeds.

5. Public Use.
   a. Determine the most feasible land use to reduce and prevent weed infestations.
   b. Determine if specific public awareness programs could reduce the infestation or control the spread of weeds.
   c. Determine if exclusion is a possibility and how it would affect the weed infestation.

B. Physical/Mechanical Control.
   1. Manual control.
      a. Determine whether hoeing or "grubbing" will reduce (or increase) the infestation.
      b. Determine whether hand pulling of the weeds reduces the seed source or plant population.
   2. Mechanical control.
      a. Evaluate the terrain for mowing and determine whether it is an acceptable option for control of the spread of weeds.
      b. Evaluate cultivation and other conventional farming practices that could be utilized and determined to be cost effective.
   3. Prescribed burning.
      a. Evaluate if a prescribed burn program will effectively enhance other control methods.
      b. Determine the long term effect of burning on target and nontarget species.
      c. Determine if policy and laws allow prescribed burning.
      d. Determine whether the terrain and vegetative cover allows for a prescribed burn program.

C. Biological Control.
   1. Natural competition.
      a. Determine whether there are naturally occurring agents within the ecosystem which can reduce the weed infestation.
      b. Determine which elements affect naturally occurring control agents.
         1) Determine whether these elements can be modified to reduce the negative affect on these agents.

2) Determine whether these elements can be enhanced to increase the effectiveness of these agents on the weed infestation.

2. Introduced competition.
   a. Determine whether biological control agents can be introduced into the ecosystem to reduce the level of infestation.
   b. Determine which introduced biological agents provide an acceptable control method for this infestation.
   c. Determine whether the introduced biological agent can survive in the environment of the treatment area.
   d. Determine whether policy and laws allow for the introduction of biological control agents.
   e. Determine whether policy and laws allow for introduction and grazing of livestock as a biological control measure.

D. Herbicide Control.
   1. Determine the effectiveness of the herbicides to control the infestation.
   2. Determine whether the herbicide is labeled for:
      a. Use on the target weed.
      b. Use on the infested site (consider nontarget plants, soil type, ground water location, topography, climate, state labeling, etc.).
   3. Determine the most effective and cost efficient application techniques and equipment.
   4. Determine whether properly trained and certified personnel are available to apply the herbicides.
   5. Determine if fertilization alone or in combination with herbicides will enhance weed control.

Remember, it is the use of the above options in combination that results in the most successful weed management. IWM is based on the knowledge that combined tactics for weed management are more effective than a single tactic.

Section VII

Monitoring and Evaluation

Monitoring and evaluation indicate the condition of the WMA and report changes in vegetation trends. Monitoring and evaluation also record vegetation trends caused by weed management activities. Weed-free areas probably deserve more rigorous monitoring than known infestations.

I. Monitoring

Monitoring means repeated systematic observation.

Monitoring begins with the pooling of all available information (an inventory of known facts) to establish baseline data. This information may be obtained from cooperators' existing databases.

A. Purpose of a Monitoring System.
   1. Collect baseline field data on existing weed infestations and control practices.
   2. Compile data on which to base weed control decisions.
   3. Evaluate the effectiveness of treatments, including modifications to the design or maintenance of the system and the education and training program.
   4. Prevent reinvasion by returning to eradicated stands to determine if new plants have established.

B. Different Levels of Monitoring.

The following monitoring levels are dependent on the resources and manpower available. Low intensity (Level I) requires fewer resources and time than high intensity (Level III). Specific areas of each Weed Management Area may require different levels of monitoring. It is almost impossible to fully monitor all areas and/or species, thus prioritize what to monitor.

   1. Low Intensity (Level I) Objective: To detect new infestations and to assess the success of small scale chemical or mechanical control programs.
      a. Annually survey size and density of weed infestations and vegetation trends.
      b. Assess public opinion towards weeds and weed control.
      c. Assemble data on past and current weed control activities within the WMA.
      d. Annually update the distribution/density map discussed in *Section V*.
      e. Annually examine areas that are determined to be particularly susceptible to weed. infestations.
   2. Moderate Intensity (Level II) Objective: Assess the success of ongoing chemical, biological control, or prevention programs in order to evaluate the need for adjustments. Include the elements of Level I, plus:

a. Establish permanent transects to aid visual monitoring. *(See Appendix 8.)*
b. Establish photo points. Catalog and store photos so that they are useful for recording trends. *(See Appendix 8.)*
c. Collect weather data. This will require access to weather records and Palmer Drouth Index.
d. Evaluate the success of public education programs.
e. Monitor funding from various sources.
f. Assess the prevention effort.
g. Compare the success of application timing, rates, and methods of treatment with that of applications on similar areas.
h. Make an annual visual inspection for symptoms of damage to desirable plants.
i. Make post-treatment inspections to determine possible damage and the need for retreatment.

3 High Intensity (Level III) Objective: Assess the success of major, sensitive, or experimental control programs. Include the elements of Levels I and II, plus:

a. This level may require the use of statistical and chemical analysis.
b. Establish a computerized database. Geological Information Systems (GIS) lend themselves to this level of monitoring.
c. Automatic weather stations may be used to collect data.
d. May require more detailed maps.
e. Collect data on ground water, soils, health effects and impacts on wildlife management.

II. Evaluation

Evaluation is relating information obtained from monitoring to the objective of the Annual Operation Plan (AOP).

A. Use evaluation to determine:
   1. If the weed management program accomplishes the objectives of the AOP.
   2. If the AOP is still desirable and realistic. Evaluation requires analyzing information gained through monitoring, including benefits versus costs, comparing it with the cost/benefit of other alternatives, comparison with untreated areas, and projected costs of no action.

B. Evaluation should answer the following questions:
   1. Was the weed population adequately suppressed?
   2. Was the planned procedure used? If not, what was different and was it documented?

3. Was the cost of weed suppression equal to or less than the potential loss?
4. What was the affect on target organisms?
5. Were natural enemies affected by the treatment?
6. Were there any other side effects from the treatment?
7. Were the side effects included in the cost-benefit analysis?
8. Should the treatment be repeated or modified?
9. Should another kind of treatment be considered?
10. Was funding and manpower available at the appropriate time?
11. Was training adequate?
12. Were changes in the weed regime due to external factors?
13. Make changes to the AOP based on your evaluation.

Section VIII

Reporting

I. Reporting Procedures

The administration of a noxious weed program includes inventorying infestations, establishing a Weed Management Area (WMA), developing a plan, and applying management practices to prevent the spread of and to control noxious weeds.

Documentation of a noxious weed program should:

1. Provide an inventory by levels of infestation by species.
2. Track the number of acres managed by species, by treatment method, and by funding.
3. Collect data by ownership and be consistent in data collection to allow land manager reports to be easily aggregated to the area level.
4. Individual WMAs may want to submit the yearly report to the County Weed Districts.

Land Management cooperators within the WMA should report the following information. Following are examples of 3 reports that could be used by your WMA.

Refer to *Appendix 7* for sample forms for the following reports:

Report #1 — Weed Management Area Status Report

This annual report charts the progress made in the WMA towards organization and completion of the WMA's objectives. This report also records funding required to complete all WMA Management Plan objectives successively. Use Report Form #1 found in *Appendix 7*.

Report #2 — Noxious Weed Management by Species, Method, and Funding

This annual report represents the total number of acres of noxious weeds placed under management within the WMA. The treatment techniques will differ by site and species. Measure acres treated or retreated by the technique outlined in the Weed Management Area Plan. (See definition of "Managed Acre" in *Section X*.) Use Reporting Form #2 found in *Appendix 7*.

Section VIII

Report #3 — Noxious Weed Infested Acres By Level By Ownership

This report, filed at 3-year intervals, represents the acres of noxious weed infestations within the Weed Management Area by land ownership (agency, state, private land). Provide a small scale map of the Weed Management Area with the noxious weed infestations illustrated by species, infestation level and with land ownership defined. Use Report Form #3 found in *Appendix 7*.

II. Discussion

Noxious weeds infest all types of lands and impact the quality and quantity of all renewable resources. Coordinated noxious weed management within logical established areas provide the best strategy to achieve management objectives and fully incorporate integrated pest management principles.

Reporting weed infestations by species and infestation level on a 3-year basis will provide information needed to document the trends in noxious weed infestations, their economic impact, and long-term assessment of treatment needs. Reporting acres placed under management will provide annual accomplishments, strengthen cooperative actions, and improve the efficiency and effectiveness of noxious weed management in the WMA.

This information will be valuable to state and federal agencies as they request weed management funding.

Section IX

Management Plan (MP) and Annual Operating Plan (AOP)

The Management Plan is considered the over-all, long-term plan for the WMA. Ideally, its objectives address weed management for at least five years or longer.

I. Guidelines for Developing a Weed Management Area Management Plan

The Management Plan (MP) is the guiding document for each Weed Management Area. It is developed after the steps outlined in Section II, "Purpose and Organization of Weed Management Areas, Part Two", are completed.

The Annual Operating Plan (AOP) addresses how the Management Plan is implemented on an annual basis.

Refer to *Appendix 11* for Management Plan examples.

A. Define/Describe the WMA.
   1. Name and legal description.
   2. Describe boundaries.
   3. Describe land use — forest, recreation, grazing, farming, mining, etc.
   4. Describe topography, major aquatic features, and other natural resources.
   5. Describe wildlife and flora.
   6. Describe endangered species and species of special concern.
   7. Identify urban areas.
   8. Identify archaeological and Native American cultural sites.

B. Define Purpose of WMA Management Plan.
   1. Describe long-term goals, objectives, and methods for controlling noxious weeds in this Weed Management Area.
   2. Identify funding and resources for weed management.
   3. Establish cooperation with residents, landowners, agencies, towns, organizations, counties, and states to effectively implement programs of prevention and control within the WMA.
   4. Coordinate with other WMAs in the area.

C. Define WMA Policy.
   1. Commitment to cooperation. (*See Appendix 1 for a sample cooperative agreement.*)
   2. Commitment to the use of Integrated Weed Management methods. (*See Section VII.*)
   3. Establish adherence to management of noxious weed in accordance with area priorities as follows:
      a. First — Prevention of potential invaders;
      b. Second — Control of new and invading species new to a particular part of the WMA; and
      c. Third — Containment and management efforts on established stands.

4. Commitment to comply with all policies for at least 5 years.

D. Define Long-Term WMA Objectives.
Objectives should address the needs of the individual WMA and may not need to include all aspects of noxious weed management listed here. Also, the need for and prioritization of the following objectives will vary between WMAs. It is important to *consider* each of these objectives, as success is greatest when an integrated plan is developed and implemented.
   1. Develop and maintain a survey and mapping system.
   2. Develop and maintain funding and administration.
   3. Develop awareness, education, and training programs.
   4. Develop prevention and early detection programs.
   5. Develop long-term management objectives for weeds of concern, according to area prioritization. (Refer to 3 above.)
   6. Develop and maintain monitoring and evaluation programs.
   7. Develop and maintain a reporting system.

E. Identify Weeds of Concern within the WMA.
   1. List weed species and acres infested.
   2. Describe methods of introduction.
   3. Describe most likely areas of future infestations.

F. Develop an Integrated Weed Management (IWM) program for target weed species.
   1. Describe all appropriate control methods for each weed. Use the Site Assessment Worksheet in *Appendix 10* to determine the most effective IWM program.
   2. Determine who will make yearly control methods recommendations. Keep recommendations current.
   3. Describe safety precautions to be implemented.
   4. Include corrective measures to prevent recurrence of weed infestations.

G. Define Cooperators' Roles and Responsibilities.
   1. List agencies and jurisdictions involved.
   2. Identify signatures required.
   3. Define planning timetable.
   4. Define terms and time of termination if applicable.

H. Define Collection and Management of Funds.
   1. Identify sources of funding.
   2. Establish a budget.
   3. Determine fund management responsibilities:
      a. Determine if the WMA needs its own account.
      b. Determine administrative costs.

Section IX

II. Guidelines for Developing an Annual Operating Plan

The Annual Operating Plan (AOP) addresses how, *on an annual basis*, the objectives of the over-all Management Plan are imple mented. Due to manpower, funding, or other limitations, it may not be possible for the AOP to address all the objectives of the Management Plan in a given year. The Management Plan must address long term objectives and priorities. The Annual Operating Plan guides implementation of the Management Plan in yearly increments.

Budgets and circumstances may change from year to year and these changes are best addressed in making new Annual Operating Plans, rather than rewriting the Management Plan annually.

An AOP may be developed for different management zones within the WMA. These zone-specific plans should be utilized only if they enhance weed management and control. For instance, a specific AOP may be necessary to manage only roadside weed problems within the WMA.

Refer to *Appendix 11* for an Annual Operating Plan example. Review the Management Plan and review long-term objectives.

A. Define Roles and Responsibilities.
    1. List agencies and jurisdictions involved.
    2. Obtain signatures required.
    3. Develop planning timetable.
    4. Define terms and time of termination, if applicable.

B. Define Agreements and Compliance.
    1. Voluntary agreements: compliance of all land managers within their agency guidelines.
    2. Written agreements in special management areas requiring intensive management may be needed.
    3. Written agreements with landowners for control of noxious weeds along roadways may be implemented.
    4. Procedure for non-compliance must be followed where applicable.
    5. Cooperative agreements: *(See Appendix 1.)*
        a. Include: state agencies, municipalities, federal agencies, railroads, power company, others.
        b. Should include listed noxious weed species.
    6. Revegetative standards and guidelines: written plan specifying methods for accomplishing revegetation, timing, methods.
    7. Cost-share programs:

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a. WMA steering committee should set standards for cost-share.
b. Cost-share programs within the WMA may differ within special management areas.

C. Define Annual Funding and Resource Availability.
1. Identify sources and amount of funding.
2. Identify sources and amount of other resources:
a. Equipment availability.
b. Staff availability.
c. Cooperative mapping projects.
d. Storage availability.
e. Administration.

D. Define Specific Actions to Meet AOP Objectives
1. Implement and maintain a mapping program: (*See Section V.*)
a. Define areas for survey and mapping.
b. Determine who will be responsible.
c. Determine manpower and funding required.
2. Implement prevention and early detection programs: (*See Section IV.*)
a. Define specific activities.
b. Determine who will be responsible.
c. Determine manpower and funding required.
3. Implement awareness, education, and training programs: (*See Section III.*)
a. Define specific activities.
b. Determine who will be responsible.
c. Determine manpower and funding required.
4. Implement the IWM system for the weeds of concern. (*See Section VII.*)
a. Determine short-term IWM objectives and methods for each target weed.
b. Determine who will implement treatment program.
c. Determine manpower and funding required for control.
5. Implement and maintain monitoring and evaluation for all targeted weeds and according to Management Plan priorities and objectives. (*See Section VIII.*)
6. Develop and maintain a reporting system for all proposed actions according to Management Plan priorities and objectives. (*See Section IX.*)

Appendix 1

Sample Contracts, Agreements and Memorandums of Understanding

I. Sample Professional Services Contract

This Professional Personal Services Contract made and entered this _ DAY (ie, 1st) _ day of _ DATE _, by and between the Montana Department of Fish, Wildlife, and Parks from its Helena office, hereinafter referred to as department, and ____ County Weed Control of ___ County, hereinafter referred to as contractor.

WHEREAS, department has need of the personal services of contractor in the profession of Weed Control, and contractor desires to provides those services to department.

Now, THEREFORE, in consideration for the terms, conditions, and promises as hereinafter set forth, department and contractor agree as follows:

1. Purpose. The purpose of this contract is to provide department with the professional personal services of contractor in order to do the following: Spray leafy spurge on Department lands on Smith River (BLM in-lieu lands.)

2. Contractors' duties. In order to fulfill the purpose of this contract, contractor agrees and promises to carry out the following duties. Spray leafy spurge on Department lands on Smith River and such other related tasks as necessary to fulfill this contract.

3. Compensation. Department agrees and promises to pay to contractor compensation as follows: $7.00/Hr. Labor — $6.00/Hr Truck + Chemical Per diem prorated with other accounts. Maximum compensation not to exceed $400.00.

   Payment for partial performance of any services under this contract may not be made prior to approval of that performance by the department liaison. Final payment under his contract may not be made until all services required under his contract and all applicable terms of the contract have been met. Each billing by contractor shall include the following wording and appropriate party shall sign accordingly:

   "I certify that the foregoing statement is true and accurate and that I have not been paid therefor."

_____

(Contractor)

4. Effective date and performance schedule. The term of this contract is from ___DATE___ through ___DATE__.

5. Liaison. Department designates __NAME___ as liaison for contractor under this agreement. Contractor agrees to make all official contacts with department with this designee, or such other person as the designee appoints.

6. Department assistance. Department agrees and promises to provide assistance to contractor as follows: Provide maps as necessary.

7. Ownership and publication of materials. Unless specifically set forth in this item, department retains ownership for all purposes of the working papers, working products, and end products resultant from partial or full performance under this contract. Contractor agrees and promises to have all information concerning activities ;under his contract approved by the designated liaison prior to release of that information.

8. Independent contractor. This contract is with contractor as an independent contract or and does not establish an employer-employee relationship with contractor or any person employed by him for any purpose. In this regard, contractor agrees to pay all state, federal, or local taxes, fees, or other assessments related to employment of himself or any person or individual employed by him as necessary in fulfillment of this contract.

   8a. The contractor agrees to obtain in full force and effect, without any periods of lapse, worker's compensation insurance on all employees of the contractors. This insurance coverage shall be continuous during the entire term of this contract. As an alternative to maintaining effective worker's compensation insurance coverage on all employees of the contractor, these members may be certified as independent contractors provided that criteria for such election described in 39-71-401, MCA, and the Administrative Rules of Montana, are met.

8b. Student intern. This contract is with contractor as a student intern. The school program sponsored and required of contractor by the educational institution he is attending is N/A. Contractor hereby states he is neither an independent contractor nor an employee of the Montana Department of Fish, Wildlife and parks, but rather a student of _____N/A_____(applicable educational institution)

9. Special conditions. Contractor agrees and promises to perform the special conditions under his agreement as follows: Use caution when spraying along water's edge

10. Records by contractor. Contractor agrees and promises to keep and maintain reasonable records of activities performed under this contract.

11. Access to records. As required by law, contractor agrees to permit access to those contractor's records as may be necessary for legislative post-audit and analysis purposes in determining compliance with the terms of this contract. This contract shall automatically terminate upon refusal of contractor to allow access to records necessary to carry out the legislative post-audit and analysis functions set forth in Title 5, Chapters 12 & 13, MCA.

12. Termination and default. This contract may be terminated by notice in writing to the opposite party at its address as set forth herein at least _____ days prior to the effective date of termination. Upon default by either department or contractor, the nondefaulting party may terminate this contract as set forth in this item. If default is remedied prior to the effective date of termination, the nondefaulting party may elect not to terminate this contract. Upon termination, department agrees and promises to pay contractor for work performed up to and including the termination date, and contractor agrees and promise to return all materials supplied by department except those used in performance of this contract as well as working papers,

working products, and end products resulting from this agreement.

13. Venue. Department and contractor agree that venue for any court action arising under this agreement shall be in the First Judicial District in and for Lewis and Clark County, Montana. Further, department and contractor agree that this contract shall be interpreted according to the laws of Montana.

14. Assignment. Department and contractor agree that as this contract is for the personal services of contractor, this contract is not assignable, may not be transferred, nor may a subcontract be let hereunder unless both parties agree in writing prior to any such action.

15. Entire agreement - modification. This writing contains the entire agreement between department and contractor on the subject matter of this contract; statements, promises, or inducements made by either party or agents of either party, which are not contained in this agreement, are not valid or binding. No modification, enlargement, or alteration of this contract is valid or binding except upon written agreement signed by all parties to this contract.

16. Bonds. The department, or any subdivision thereof (board, council, commission or trustee), or body acting for the department, may require a bond to insure the 1) faithful performance of all the provisions of the agreement; 2) full payment of all laborers or subcontractors; 3) full payment to all persons supplying goods, services, materials or supplies to complete the work herein prescribed. It is hereby agreed that the contractor, upon adequate and due notice from the department prior to consummation of this agreement, will supply sufficient bond, provided by a reputable and established surety company or other method approved by the State of Montana, the terms of which will be established by the department.

    A copy of said bond shall be filed with the County Clerk and Recorder for Lewis and Clark County, and other counties where such work is performed.

17. Equal Employment Opportunity. Pursuant to Sections 49-2-303 and 49-3-207, Montana Code Annotated, no part of this agreement shall be performed in a manner which discriminates against any person on the basis of race, color, religion, creed, political ideas, sex, age, marital status, physical or mental handicap, or natural origin by the persons performing the agreement. Any hiring shall be on the basis of merit and qualifications directly related to the requirements of the particular position being filled.

18. Fair Labor Standards. The contractor agrees to comply with all federal and state wage and hour rules, statutes and regulations, and warrants that all applicable federal and state fair labor standards provisions will be complied with, both by the contractor, in the event the subcontracted services to fulfill the terms and conditions of the agreement are agreed upon by the department and the contractor.

19. Inability to Fulfill Contract. It is understood that contractor will notify the liaison of the department immediately upon determination that any malady or occurrence has taken plane which would, in any way, affect or alter the duties, responsibilities, authorities, relationships or ability of the contractor to fulfill the provisions of this agreement in a timely manner and as prescribed herein.

20. Execution. Each party has full power and authority to enter into and perform this agreement, and the person signing this agreement on behalf of each party further acknowledges that he has read this agreement, understands it and agrees to be bound by it.

IN WITNESS WHEREOF, the undersigned parties to this contract caused this contract to be entered into on the date first above written.

CONTRACTOR DEPT. OF FISH, WILDLIFE & PARKS

By _____ By _____

Approved for legal consent:

_____

Appendix 1

II. Sample Disturbed Site Rehabilitation Contract

Protection of Disturbed Areas
from Establishment of Noxious Weeds.

To protect disturbed areas such as, but not limited to, landings, temporary roads, and loading ramps from establishment of noxious weeds the purchaser shall, when directed in writing by Forest Service, revegetate those areas where purchaser's operations have exposed the mineral soil.

Revegetation shall be done by seeding with grass or other desirable herbaceous seed. All seed used shall be certified and approved in advance by Forest Service.

Unless agreed to in writing, seeding shall be done in the early spring or fall during weather and moisture conditions favorable for quick germination and growth of the seed. Seeding shall be completed within 6 months of the last disturbance activity scheduled by the purchaser on the disturbed areas and before the germination of noxious weed seedlings.

Seeding shall be spread evenly at the rate of _____ pounds per acre and the seed mixture shall consist of _____
_____.
In addition to seeding, purchaser shall apply _____ pounds per acre of fertilizer. Percentages of nitrogen, phosphate, and potassium shall not be less than ___-___-___.

Purchaser may, under B4.225, deposit sufficient funds to cover the cost of seeding. The rate of deposit for seeding shall be _____ 1/dollars ($_____) per M board feet) 2/, (other, specify) 3/ or equivalent for (Live-Dead) 4/ material meeting utilization standards and reported cut.

Appendix 1

III. Sample Closure Order

Public Notice
ORDER ESTABLISHING PROHIBITIONS IN AREAS OF THE SHOSHONE NATIONAL FOREST

USDA - Forest Service
Shoshone National Forest
P.O. Box 2140
Cody, WY 82414
Telephone: (307) 527-6241

WASHAKIE WILDERNESS ORDER

By virtue of the authority vested in me under the Regulations of the Secretary of Agriculture, 36 CFR 261.50 (a) & (b), the following acts are prohibited:

1. Grazing livestock on sites posted closed to grazing [36 CFR 261.57 (e)].
2. Possessing or transporting other than processed supplemental feed for livestock [36 CFR 261.58 (t)].

This order is posted in accordance with 36 CFR 261.51. THIS ORDER SUPERSEDES AND RESCINDS STEPHEN P. MEALEY'S ORDER OF JUNE 21, 1984. DONE AT CODY, WYOMING THIS 30TH DAY OF MAY, 1985.

NAME, Forest Supervisor

Violations of this prohibition and the other regulations found in 36 CFR 261.3 through 261.21 are punishable by a fine of not more than $500 or imprisonment for not more than six months or both (16 USC 551).

Appendix 1

IV. Sample Inter-Agency Quarantine Agreement

State of Wyoming
Memorandum of Understanding

A. PARTIES: This Agreement is made between the Wyoming Highway Patrol (WHP), Wyoming Department of Agriculture (WDA), Park County and Teton County Weed and Pest Control (District).

B. AUTHORITY: W.S. 11-2-202, 11-5-116, 11-5-118, 37-8-301 and 24-12-103.

C. PURPOSE: The parties desire to cooperate in the enforcement of quarantines established pursuant to W.S. 11-5-116.

D. SERVICES BY THE WHP:

1. The WHP shall provide assistance to the WDA and the District in the implementation of the quarantine by providing inspection of vehicles transporting agronomic crops and/or farm products into and within Park County or Teton County.

2. The WHP shall periodically check vehicles transporting agronomic crops and/or farm products (hay & straw) into and within Teton County and request proof of Transit Certificate (WDA-70).

3. The WHP shall periodically check vehicles transporting agronomic crops and/or farm products into Park County, and request proof of Transit Certificate (WDA-70). Agronomic crops and/or farm products being transported into or within Park County requires either a Quarantine Release (WDA-113) or Transit Certificate (WDA-70).

4. Any driver failing to provide proof of certification shall be advised to: 1) return the cargo to its point or origin, or 2) change the destination of the cargo to a place outside of Park County or Teton County. The WHP at its discretion will take appropriate enforcement action.

5. Advise the individual of their right to a consultation within twenty-four (24) hours **before** the district board

or its designated agent or legal counsel, for the purpose of providing proof of certification. In the event the individual exercises the right to a consultation, the cargo shall be moved to a port of entry or other location designated by the WHP or the District until said consultation has been held, and the cargo is released. Any person violating any provision of the quarantine may be subject to a fine not to exceed $100 pursuant to W.S. 11-5-117.

E. SERVICES BY THE DISTRICT:

1. Provide personnel to inspect fields for certification.
2. Provide assistance upon request to WHP to answer question concerning certification.
3. Pay for services rendered as agreed upon between affected District and the WHP.
4. If requested, grant the individual a consultation within twenty-four (24) hours. [See D (5) above regarding temporary storage of cargo.] Any person violating any provision of the quarantine may be subject to a fine not to exceed $100 pursuant to W.S. 11-5-117.

F. SERVICES BY THE WDA:

1. Provide certificate of inspection forms (WDA-69) and transit certificate forms (WDA-70).
2. Provide assistance upon request to WHP to answer question concerning certification.
3. Provide assistance upon request to the District.
4. Provide a procedure manual for the enforcement of quarantines.

G. DURATION OF THIS AGREEMENT:

1. This agreement shall become effective upon signing by all parties and shall remain in effect until terminated by written notice of one of the parties.
2. This agreement may be amended by written mutual agreement of the parties.

Appendix 1

H. COMPLIANCE WITH LAWS:

In performing this contract, all parties agree to comply with all applicable state, federal, and local laws, rules, and regulations.

I. SOVEREIGN IMMUNITY:

The State and District reserve all claims it may have to sovereign immunity from events arising out of this agreement.

Appendix 1

V. Sample County Weed Control Plan

WEED CONTROL PLAN
(Project Name - County)

The Department of State Lands, Abandoned Mine Reclamation (AMR) Bureau hereby submits this Weed Control Plan to the _____ County Weed Control Board as required by the Montana County Noxious Weed Management Act. Rule 7-22-2121, New Section C (3) (a) states, "The person or agency disturbing the land shall submit to the board a written plan specifying the methods to be used to accomplish revegetation. The plan must describe the time and method of seeding, fertilization practices, recommended plant species, use of weed-free seed, and weed management procedures to be used."

The attached Invitation For Bid package, covers most of the above requirement under the following sections: (1) Section IV, Special Provisions, Subsection 4.30, Fertilizing, Seeding, and Mulching; and (2) Section V, Technical Specifications, Subsection 5.00, Seed and Fertilizer.

Upon completion of the _____ Project the Abandoned Mine Reclamation Bureau will continue to monitor the site biannually for any further abandoned mine hazards and any growth of noxious weeds. If any noxious weeds listed by the _____ County Weed District appear on the reclamation site, the County Weed Supervisor will be notified immediately.

The most effective method of control will be implemented according to the District's noxious weed program. The AMR Program assumes responsibility for weed control on all AMR sites during reclamation construction and for two years after the date of reclamation completion. After two years, the weed control responsibility reverts back to the deeded landowner.

The Weed Control Plan for the _____ Abandoned Mine Reclamation Project is officially approved and in effect until two years after the completion of reclamation construction when executed by the following officials.

_____

NAME, Chief — Date
Abandoned Mine Reclamation Bureau
Department of State Lands

_____

Chairman — Date
_____ County Weed Control Board

_____

Supervisor — Date
_____ County Weed District

Appendix 1

VI. Sample Weed Management Cooperative Agreement

Weed Management Cooperative Agreement
Between Department of State Lands
and _____ Weed Management District

This Cooperative Agreement between the Montana Department of State Lands (hereinafter "Department") and the _____ County Weed Management District (hereinafter "District") outlines the responsibilities for noxious weed management on state-owned lands (hereinafter "state lands") administered by Department, and for easements held by Department within District.

I. Management and Control of Weeds on State Lands

A. For State Lands Not Subject To a Land Authorization or an Easement -

For state lands not subject to a land-use authorization (a lease, license, sale contract, or timber sale contract) or an easement, and for easements held by Department, Department assumes responsibility for compliance with the noxious weed management and control requirements of Title 7, Chapter 22, Part 21, MCA. Upon written request of Department, District may conduct management and control measures necessary for compliance with Title 7, Chapter 22, Part 21, MCA, or state lands and on easements held by the Department.

B. For State Lands Subject to an Easement - District shall treat all easements across state lands as the private land of the easement holder.

C. For State Lands Subject to a Land Use Authorization -

1. Request by District for Voluntary Compliance
When the District has received a complaint or has other reason to believe that noxious weeds are present on state lands subject to a land use authorization, such as a lease, license sale contract, timber sale contract, District shall notify the holder of the land use authorization, inspect as necessary, seek voluntary compliance, as

provided in 7-22-2123, by the holder of the land use authorization.

2. Enforcement by District - If noxious weeds are present on state lands subject to a land use authorization and also present on private lands owned or controlled by the holder of the state land use authorization, the District shall include the state lands in whatever enforcement action it takes to remedy the weed problem on the private lands.

3. Department Assistance to District - If noxious weeds are present on state lands subject to a land use authorization but are not present on the private lands owned or controlled by the holder of that state land use authorization, and the holder of the state land refuses to voluntarily comply after District action under C. 1., District shall then require compliance through administration of its land use authorization.

II. Other Responsibilities of Department

A. Department shall reimburse District for all weed management and control measures conducted pursuant to I. A. above. Department may not request District to conduct weed management and control unless it has money appropriated by the Montana Legislature for that purpose.

B. Department shall notify the District of any noxious weed infestation it observes on state lands or on easements held by Department within District.

C. Upon request of District, Department shall, whenever possible, furnish information and assistance to develop District's noxious weed management plan.

III. Administration of Agreement

A. Each party to this agreement agrees to hold the other party free and harmless of and from all liability arising

out of, or occasioned by, the negligence of that other party, its agents, officers, and employees in the conduct of control and management activities pursuant to this agreement.

B. This agreement is effective upon signature by both parties and remains in effect until no longer authorized by law or until terminated by either party on 30 days written notice.

C. Department's obligation under this Cooperative Agreement are contingent upon appropriation of funds by the Montana Legislature.

_____ Weed Management District

By: _____
Chairman Date

DEPARTMENT OF STATE LANDS

By: _____
NAME, Commissioner Date

Appendix 1

VII. Sample Source of Material Contract

Source of Supply and Quality Requirements.

All material sources shall meet weed-free requirements set forth in the Regional Certification Standards For Feeds (livestock and wildlife), Mulches, Bedding, and Re-seeding Materials. The Contractor shall notify the Engineer of the source (s) proposed for use at least 1 month before beginning operations or starting crushing. The source(s) will be investigated for "weeds of concern" during the period. If weeds of concern are present, the investigator will determine if the upper portion of the source is to be stripped or the weeds sprayed with a herbicide. When spraying is required, the spray shall be applied by a licensed operator in accordance with the regulations of the applicable state where the source is located. An agronomist's certification that the source(s) is free from "weeds of concern" may be substituted for the above requirements.

Material Source Management.

If Material Source _____ is used, the following provisions shall apply:

* The Contractor's activities shall be restricted to the areas designated on the Development and Reclamation Plan (DRP).

* Area A is reserved for this project and has been previously stripped and partially developed. The excavated portion of the area is filled with water. The area shall be developed from west to east. The depth of the excavation may vary with material availability.

Appendix 1

VIII. Sample Cooperative Agreement Between Landowners in a WMA

McIntosh Coulee Weed Control Project
Cooperative Agreement

We, the undersigned, realize the potential that spotted knapweed possesses to invade rangeland and to destroy the quality of our land. Having seen the rapid spread of spotted knapweed in the McIntosh Coulee area in recent years, we have chosen to support an aggressive integrated weed management program on our property in this area. We extend our support for the three year control program as outlined in the attached Individual Weed Management Plans.

Our goal is to return our rangeland to its full potential and to prevent this infestation from sweeping throughout the Sweetgrass Hills. Following the three year program, we will continue to monitor the area for future weed threats and will strive for the elimination of these weeds as long as the need arises.

LANDOWNERS AND AGENCY LAND MANAGER REPRESENTATIVES, MCINTOSH COULEE WEED CONTROL PROJECT

Cooperator Name Date
Address

Cooperator Name Date
Address

Cooperator Name Date
Address

Cooperator Name Date
Address

Appendix 1

Individual Weed Management Plan for:

Name: _____ Phone: _____

Address: _____

No. Acres Owned: _____ Location: T ___ R ___ Sec _____
or Subdivision _____

Current land use: _____ Future land use: _____

Outline past weed control practices: _____
_____

Previous owner if land has changed ownership in last 3 years:
_____

Are noxious weeds mapped? Yes ___ No ___

Well log information: List depth to first water: _____
List soil type: _____

Planned weed control practices for year 1:

Targeted weed species (list all): _____
_____

Acres to be treated: _____ Crop or land use: _____

Control Practices:

Herbicide applications:

Herbicide trade name(s) and application rate(s): _____
_____

Who will do applications? Self ____ Commercial applicator _____
Estimated cost: _____

Acres to be seeded: _____ Type of seed: _____
Planting rate: _____ Estimated cost: _____

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Acres to be handpulled or cultivated (circle one): _____
Estimated cost: _____

Cross-fencing, feet or miles (circle one): _____
Estimated cost: _____

Spring development: Detail- _____
Estimated cost: _____

Grazing systems: Explain - _____
_____
Estimated cost: _____

Other:
_____
_____

Repeat for each planned additional year:

Year 2

Year 3

Year 5

Year 5

ETC.

Appendix 1

IX. Sample Invitation to Bid

NOTICE IS HEREBY GIVEN that the Steering Committee of the Sample Weed Management Area, will until 10:30 o'clock a.m. upon
__DATE___, receive sealed bids for the application of pesticides in Sample Weed Management Area. At 10:30 a. m. on __DATE___, at the County Courthouse, all bids received will be opened and publicly read aloud. The specifications, bid forms and other contract documents are on file at the County Courthouse, where they can be obtained. All bids submitted by mail should be addressed to Sample Weed Management Area, PO Box ___, City, State, zip, and clearly marked "Contract Spraying Bid Form".

The Steering Committee reserves the right to reject any and all bids and to waive informalities in the bidding.

No bidder may withdraw his bid for a period of thirty (30) days after the scheduled date of bid opening.

By order of the Steering Committee.

DATED this ____ day of _____,_____

Sample Weed Management Area

By: _____
Chairman

Appendix 1

X. Sample Contractor Agreement

THIS AGREEMENT is entered into this _____day of _____, YEAR, by _____ hereinafter called CONTRACTOR, and SAMPLE WEED MANAGEMENT AREA, hereinafter called WMA,

WITNESSETH

CONTRACTOR and WMA, in consideration of the mutual covenants and agreements herein contained, agree as follows:

1. CONTRACTOR shall furnish the equipment, labor and supervision for application of pesticides in Sample Weed Management Area as from time to time required by WMA, in accordance with the *Requirements - Specifications* and bid of CONTRACTOR. Said *Requirements - Specification, General Conditions, Invitation to Bid*, and *Bid*, and any addenda are made a part hereof.

2. Noxious weed treatment and sterilization will be performed between April 1 and November 30 of each year during the term of this contract as from time to time required by WMA.

3. WMA will pay and CONTRACTOR will accept in full consideration for the performance of this contract, subject to additions and deductions as may hereafter be agreed in writing, the following:

a. for spot control of noxious weeds and bare-ground treatment - each unit (consisting of a vehicle, spray equipment, two applicators, and supervision) used in the work: $_____ per hour.

b. for broad jet spraying of noxious weeds: $_____ per lane mile.

c. all payments to be made by WMA to CONTRACTOR pursuant to the Requirements - Specifications and General Conditions.

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IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed in three counterparts, each of which shall without proof or accounting for the others, be deemed an original thereof.

_____

CONTRACTOR

By: _____

Title: _____

SAMPLE WEED MANAGEMENT AREA

By: _____

Title: _____

ATTEST:

_____

Secretary

Appendix 1

XI. Sample Bid Form

Application of Pesticides
For
Sample Weed Management Area

TO: Steering Committee, Sample Weed Management Area

In compliance with your *Invitation to Bid* and the *Requirements - Specifications, General Conditions, Agreement* form and any addenda thereto, the undersigned hereby proposes to provide all labor, equipment, and supervision for the application of pesticides in the Sample Weed Management Area during and for the year(s) specified for the following amounts:

a. for control of noxious weeds and bare-ground treatment - each unit (consisting of vehicle, spray equipment, two applicators, and supervision) used in the work: $_____ per hour

b. for broad jet spraying of noxious weeds: $_____ per lane mile

Attached hereto is a description of the spray unit or units to which the undersigned intends and proposes to use in performance of the work, and other information relating to equipment and facilities of the undersigned.

If written acceptance of this bid is mailed, telegraphed or delivered to the under-signed within thirty (30) days after the date of opening bids, the undersigned will, at the WMA's earliest connivance, execute and deliver a contract in the form of agreement attached to the Specifications and will give bond if requested.

Signed:

_____
BIDDER

By: _____

Title: _____

Address: _____

_____

Appendix 1

XII. Sample Pesticide Application Contract

Pesticide Applications
For
Sample Weed Management Area

1. Contract Documents:

a. The contract documents consist of the Agreement, the Requirements - Specifications, General Conditions, Invitation to Bid, Bid Form and all addenda and alterations made prior to their execution, together with the proposal.

b. Sample Weed Management Area, is through said documents referred to as WMA.

c. Any discrepancy in the contract documents shall be called to the attention of WMA before proceeding with the work.

2. Preparation and Submission of Bids:

a. All bids shall be submitted on the forms furnished or copies thereof and signed in ink. Any erasure or change in the bid must be explained or noted over the signature of the bidder.

b. Each bid shall give the full business name of the bidder and be signed by him with his usual signature.

c. Bidders who are not able to comply with all specifications shall state in writing each item of noncompliance in detail and the substitution offered thereof.

d. No oral explanation in regard to the meaning of the specifications will be made and no oral instructions will be given before the award of the contract. Discrepancies, omissions or doubts as to the meaning of the specifications shall be communicated to WMA for interpretation promptly, allowing sufficient time for a reply before a submission of bids. Any interpretation will be made in the form of an addendum to the specifications and the addendum sent to all bidders.

e. Each bidder shall rely solely upon his own judgment in determining the estimated amount of work to be performed and the estimated types and/or quantity of any and all equipment, fuel, labor, supervision and all other cost or other items required to be

furnished by bidder/contractor pursuant to all applicable contract documents.

3. Receipt and Opening of Bids:

a. All bids will be opened publicly and read aloud at the County Courthouse at 10:30 a.m. upon ___DATE___. The Steering Committee shall decide when the specified time has arrived and no bid received thereafter will be considered No responsibility will attach to any person for the premature opening of a bid not properly addressed and identified.

4. Award of Contract:

a. The contract will be awarded as soon as possible to the lowest responsible bidder provided his bid is reasonable and it is to the best interest of WMA to accept it, and subject to preference for in-state materials and contractors.

b. Each bidder shall submit evidence of his experience, qualifications and financial ability. This includes a current financial statement.

c. Each bidder shall provide proof of liability insurance and other insurance coverage as required by WMA the bidding.

d. WMA reserves the right to reject any or all bids and to waive any informality in.

5. Preference to in-state Contractors:

a. Preference is hereby given to materials, supplies, equipment, machinery and provisions produced, manufactured, supplied or grown in-state, quality being equal to that offered by competitors outside of the state.

6. Bond:

a. WMA shall withhold 10% of each payment until November 1 of each contract year. After the board has determined that all expenses pertaining to the operations of the contract spraying have being satisfied by CONTRACTOR, the balance of the payment shall be made in full to CONTRACTOR. If necessary, WMA

shall be entitled to expend part or all of the withheld funds to pay any outstanding debts incurred by CONTRACTOR in the process of fulfilling his contract with WMA.

7. Payment to CONTRACTOR:

a. Upon the first workday of each month WMA will pay to CONTRACTOR the contract price for the amount of work performed between the 16th day and last day of the preceding month; and upon the first workday after the 15th day of each month WMA will pay to CONTRACTOR the contract price for the amount of work performed during the 1st through the 15th days of the month. All payments to be made by WMA are, however, subject to receipt from CONTRACTOR of a statement or invoice, daily worksheets upon forms furnished by WMA, and voucher verifying the amount of work performed. Any daily worksheets not completed and submitted to WMA within one working day after completion of the work will not be paid until the next payment period. Any work not paid for any one period may be included with the invoices~ or voucher submitted for the following period. WMA reserves the right, before making any payment, to require CONTRACTOR to submit evidence that payrolls, material bills, taxes and other indebtedness connected with the work has been paid.

8. Location of the Work:

a. The work is required to be performed throughout and within the Sample Weed Management Area.

b. CONTRACTOR shall work directly with the supervisor of WMA and/or his agents in planning CONTRACTOR'S spraying schedule, CONTRACTOR'S spraying schedule shall comply with the need for spraying as determined by the supervisor of WMA and/or his agents.

9. Indemnity and Hold Harmless Agreement:

a. CONTRACTOR agrees to indemnify defend and hold harmless the Sample Weed Management Area, its directors, officers, agents and employees from and against any and all liability, claims, suits, damages, costs, losses, expenses, and injuries, including but not limited to attorney's fees and court costs, arising out of or resulting from any negligent act or omission by

CONTRACTOR, it agents or employees, in the performance of this agreement and/or any addenda made a part hereof.

10. Inadequate Performance

CONTRACTOR understands and agrees that WMA may terminate this Contract by giving CONTRACTOR thirty (30) days written notice in advance of WMA' S decision to terminate, in the event CONTRACTOR'S performance under the terms and conditions of any or all the contract documents is not acceptable or satisfactory to WMA, as WMA may at it sole discretion determine.

_____
CONTRACTOR

By: _____

Title: _____

SAMPLE WEED MANAGEMENT AREA

By: _____

Title: _____

ATTEST:

_____
Secretary

XIII. Sample Contract Requirements - Specifications

CONTRACTOR shall furnish all equipment, labor, fuel and supervision to perform in a good and workmanlike manner the application of pesticides as from time to time required by WMA.

WMA will provide the pesticides required and will specify the rate of application for each job.

1. The work to be performed includes:

a. Application of all chemicals required to perform spot treatment of noxious weed control contracts between WMA and various government and private agencies, including:

Wyoming State Highway Department (highway rights-of-way)
Bureau of Reclamation;
Bureau of Land Management (within Sample Weed Management Area);
United State Forest Service (within Sample Weed Management Area);
County road rights~f-way (within Sample Weed Management Area);
Sample Irrigation District (canal and lateral rights-of-way);

b. Noxious weed spraying with an approved broad jet system.

Copies of previous contracts between WMA and such agencies are available for inspection at the office of WMA during regular business hours.

2. For spot control of noxious weeds and spot sterilization, CONTRACTOR shall provide vehicles, spray units, two applicators and supervision for each spray unit. For spot control of noxious weeds, each spray unit must have an injection system capable of allowing a minimum of three products to be added to the spray solution somewhere between the outlet of the spray tank and the nozzle. WMA will pay to CONTRACTOR an amount per hour for each unit (one unit consisting of a vehicle with spray equipment, two applicators and supervision). With prior approval of WMA, use of extra applicators (with proper equipment) or additional equipment that will facilitate the work, will be paid at the rate of one-third (113) of the hourly contract price for a spray unit.

3. For broad jet control of noxious weed, CONTRACTOR shall provide such equipment as in his discretion he determines proper.

However, each spray unit must have an injection system capable of allowing a minimum of three products to be added to the spray solution somewhere between the outlet of the spray tank and the nozzle. WMA will pay to CONTRACTOR for this type spraying an amount per lane mile.

4. WMA will, among other things, consider in awarding the contract the following:

a. Size and number of vehicle or vehicles and spray unit or units available to be used in the performance of the work;

b. availability of mobile radios in spray units (other than those required by this contract)

CONTRACTOR shall along with his bid submit information relating to such matters and should be prepared to provide such additional or other information as WMA may request.

5. CONTRACTOR shall in performance of the work:

a. provide a certified commercial applicator to perform and/or supervise the work;

b. comply with county, state and federal laws, rules and regulations at all times;

c. comply with all federal labels when mixing, applying and recommending pesticides;

d. provide Worker's Compensation insurance for all employees and any and all other benefits or coverages required under state law such as unemployment insurance;

e. collect and pay all withholdings as required by law;

f: provide liability insurance and other insurance coverage as WMA determines proper and necessary to protect, indemnify and hold harmless WMA from any and all expenses for any claims for damages and injuries brought against CONTRACTOR for its performance under this contract in the event that any legal action is brought against CONTRACTOR and/or WMA.

g. provide a certificate (see attachment #1) as proof that the CONTRACTOR has insurance coverage with minimum limits as follows:

i. general liability of $1,000,000 aggregate
ii. product liability of $1,000,000 aggregate
iii. personal injury of $500,000
iv. general liability of $500,000 each occurrence
v. fire damage of 50,000 any one fire
vi. medical expenses of 10,000 any one person
vii. automobile liability of 500,000 combined single limit
viii. WMA is named as an additional insured.

6. The noxious weed spraying and spot sterilization will be performed as required (and as permitted by weather conditions) between April 1 and November 30 of each subsequent year that this Contract is in effect.

7. For the purpose of estimating the amount of work to be performed and time required, the records of WMA showing the amount of such work required in the previous years which are available for inspection at the office of WMA during regular business hours.

8. WMA does not guarantee any minimum number of hours or lane miles of work and cannot provide a maximum number of such hours or miles. CONTRACTOR shall formulate and make his bid upon his own judgment of the amount of work to be performed based upon available past records of WMA. No agent, employee, officer or director of WMA is authorized to make any representation or warranty as to such matters and is specifically prohibited from doing so.

9. CONTRACTOR shall perform all work in a good and workmanlike manner.

10. WMA shall continually monitor the quality of work being done by CONTRACTOR.

11. Within a reasonable amount of time after application, WMA shall determine if the area treated was done in a satisfactory manner.

12. WMA may require areas to be retreated where deemed appropriate. If WMA determines that the area is to be retreated because of poor workmanship, CONTRACTOR shall not be paid for the labor required for said re-treatment. For areas that are retreated because of weather or growing season, CONTRACTOR shall be paid at the hourly contract price.

13. WMA reserves the right to terminate the contract after thirty (30) days written notice if WMA determines that CONTRACTOR is not performing the work in a reasonably diligent and workmanlike manner which determination shall be made at WMA'S sole discretion.

14. For purposes of computing an hour for which payment will be made, time will be computed starting when the unit departures from WMAs warehouse and terminating upon the unit's return. CONTRACTOR will not be paid for time the unit is not actually engaged in application of pesticides other than time the unit is traveling to and from the warehouse and the location of the work to be performed other than listed in section 18 below.

15. For the purposes of this agreement, supervision shall be defined as an individual who shall be directly in charge of the spray units in his immediate vicinity CONTRACTOR shall provide one (1) supervisory individual for each three (3) spray units. The supervisory individual shall not be one of the applicators CONTRACTOR shall furnish each supervisory individual a vehicle with a mobile radio operating on a frequency between 450.000 MHz and 470.000 MHz, and allow WMA to operate three (3) radios on the same frequency. WMA shall not be responsible for any additional costs incurred by CONTRACTOR because of the addition of said radios.

16. WMA reserves the right to instruct any single unit or group of units to discontinue spraying or shutdown operations for any just cause. CONTRACTOR shall not be paid for the unit or units from the time of shutdown until CONTRACTOR has corrected the reason for the shutdown.

17. Each unit shall be required to keep a daily log which, among other items, shall include:

a. the time the unit leaves the warehouse;

b. the time spent actually treating weeds;

c. the time and reason that any unit is shutdown;

d. the time spent traveling to and from the work area;

e. specific information concerning the area being treated;

f. approximate miles or acres covered;

g. amount or amounts and type or types of pesticides being used;

h. other information as required by WMA.

The forms for such logs shall be furnished by WMA and CONTRACTOR shall turn over the completed logs to WMA on a daily basis. A unit shall present current logs to WMA representative upon request.

15. Any unit that discontinues spraying (shutdown) for climactic reasons shall continue to be paid by WMA for a period of fifteen (IS) minutes. At the conclusion of that time, the unit shall either.

a. move to another area where climactic conditions allow spraying operations and begin spraying; or

b. resume treating the same area if climactic conditions allow such action; or

c. return to the warehouse.

If the unit does not begin one of the above actions at the conclusion of the fifteen-minute period, WMA shall discontinue payment to CONTRACTOR for the unit until one of such actions is started. WMA shall pay CONTRACTOR for no more than fifteen (15) minutes of shutdown time on an individual unit in a single work day.

_____

CONTRACTOR

By: _____

Title: _____

SAMPLE WEED MANAGEMENT AREA

By: _____

Title: _____

ATTEST:

_____

Secretary

Appendix 2

State Noxious Weed Laws, Lists, Regulations and Policies

Below is a list of state contacts. Please contact individual States Departments of Agriculture for the most current laws, regulations and state noxious weed lists for your area.

Arizona
Arizona Department of Agriculture
Plant Services Division
1688 West Adams
Phoenix, AZ 85007
(602)542-3309
(602)542-0999 FAX

California
California Department of Agriculture
Integrated Pest Control
1220 N St., Rm A-357
Sacramento, CA 94203
(916)654-0768

Colorado
Colorado Department of Agriculture
State Weed Coordinator
Department of Plant Industry
700 Kipling Street, Suite 4000
Lakewood, CO 80215-5894
(303) 239-4182
(303) 239-4177 FAX

Idaho
Idaho Department of Agriculture
Vegetation Management Bureau
2270 Old Penitentiary Road
Boise, ID 83701
(208)332-8529
(208)334-4062 FAX

Montana
Montana Department of Agriculture
Noxious Weed Section
P.O. Box 200201
Helena, MT 59620-0201
(406) 444-5400
(406) 444-7336 FAX

Appendix 2

Nevada
Nevada Division of Agriculture
350 Capitol Hill Ave.
Reno, NV 89502
(702)688-1180
(702)688-1178 FAX

New Mexico
New Mexico Department of Agriculture
Division of Agricultural & Environmental Sciences
P.O. Box 30005, Dept. 3AQ
Las Cruses, NM 88003-8005
(505)646-3208
(505)646-5966 FAX

North Dakota
North Dakota Dept. of Agriculture
Noxious Weed Division
600 East Blvd., 6th Floor
Bismarck, ND 58505-0020
(701)328-2379
(701)328-4567 FAX

Oklahoma
Oklahoma Dept. of Agriculture
Plant Industry & Consumer Services Div.
2800 North Lincoln Blvd.
Oklahoma City, OK 73105-4298
(405)521-3864
(405)522-4584

Oregon
Oregon Department of Agriculture
635 Capitol St., NE
Salem, OR 97310
(503)378-4987

South Dakota
South Dakota Department of Agriculture
445 East Capitol
Anderson Building
Pierre, SD 57501
(605)773-3796

Appendix 2

Utah
Utah Department of Agriculture
Noxious Weed Survey, Detection and Control
350 North Redwood Road
PO Box 146500
Salt Lake City, UT 84114-6500
(801)538-7180
(801)538-7189

Washington
Washington State Department of Agriculture
Yakima Plant Protection
Yakima, WA 98903
(509)576-3039
(509)454-7858 FAX

Washington State Noxious Weed Board
1851 South Central Pl., Ste 211
Kent, WA 98031-7507

Wyoming
Wyoming Department of Agriculture
2219 Carey Ave
Cheyenne, WY 82002
(307)777-6585
(307)777-6593 FAX

Not all states provided information on their programs. See contacts above for specific information.

CALIFORNIA NOXIOUS WEED LAW

Organization:

The California Department of Food and Agriculture has three programs that involve weed control: 1) Weed and Vertebrate Program—this mainly deals with weeds on the "A" list that are not widespread in the State, with some exceptions. Facets of this program include detection surveys, control/eradication activities, Global Positioning System and Geographical Information System for mapping and education/training programs for identification of target species.

Appendix 2

In California, the 58 counties are represented by 54 County Agricultural Commissioners (four Commissioners represent two counties). The County Agricultural Commissioners (CACs) are an integral part of our program. The Commissioner's staff often assists in detection surveys and control/eradication activities. In addition, CACs are responsible for enforcing quarantine regulations at the local level. The CACs are an active partner with the Biocontrol Program's efforts to establish and distribute biocontrol agents for weeds control. An annual report of our activities is available upon request.

Noxious Weed List:

The designated noxious weed list is established at the state level and must be followed by all counties. Individual counties also have the option to include additional weeds in their area.

Funding:

This program is mainly funded by the General Fund ($1.49 million). Some monies come from specific agencies for specific weeds. USDA-APHIS gives $15,000 for eradicating the federal noxious weed *Salsola vermiculata*. Los Angeles County Flood Control, Los Angeles County Parks and Recreation, and the U.S. Army Corps of Engineers gives monies er eradicate alligatorweed (*Alternanthera philoxeroides*) in Los Angeles County ($37,000, $5,000 and $12,000 respectively). The *Hydrilla* Program is mainly funded ($1.8 million) through other agencies such as California Department of Boating and Waterways, California Department of Water Resources, USDI-Bureau of Reclamation, and some local agency monies plus in-kind services from USDI-Bureau of Land Management. The Biocontrol Program mainly works on more widespread weeds, not subject to eradication. However, some of the "A" rated weeds have had agents released on them. This program receives some monies from state and federal sources, but is primarily funded through the General Fund ($1.36 million).

Appendix 2

COLORADO NOXIOUS WEED ACT

Organization:

The board of county commissioners of each county or governing body of each municipality is responsible for the management of undesirable plants within their respective jurisdictional boundaries. The Colorado Department of Agriculture is responsible for overseeing the Colorado Noxious Weed Act.

Noxious Weed List:

The state law designates 67 plant species as noxious weeds. These species are not required to be managed across the state. Rather, the board of commissioners or governing body of a municipality determines which species are required for management and may designate additional undesirable plants, within its respective jurisdictional boundaries after a public hearing.

Funding:

The costs associated with the noxious weed management plan are paid from the noxious weed management fund of each county, often derived from the county's general fund but infrequently from a local mill levy. The cost of weed control is the landowner's or land agency's responsibility.

A state grant program exists to which any Colorado landowner, manager, or organization may apply. The program is funded annually by a $225,000 appropriation from the CO general fund. The fund is administered by the Colorado Department of Agriculture with assistance from the CO Agriculture Commission and an evaluation team comprised of diverse interests.

IDAHO NOXIOUS WEED LAW

Organization:

In Idaho, each county is also a weed district. The county commissioner is the weed authority and hires a weed superintendent to enforce the program. The law specifies that landowners must control their own weeds and cover the expenses themselves.

A new revision in Idaho's weed law states that all control efforts must be directed at eradication. However, special management zones are set up to designate areas where weed infestations are beyond economically feasible control

levels. Special management zones are listed at the state agricultural office and the county weed office. Prospective commodity buyers check the listing to rule out the possibility of noxious weed seed infestation.

Noxious Weed List:

The primary noxious weed list is established at the state level but within the rules and regulations of the state law. Idaho legislators placed the primary noxious weed list in the rules and regulations so that as weed species were changed, the decision didn't require a vote.

Funding:

Funding for weed control is appropriated through a county mill levy up to 6/10 of a mill. The county can increase this level and is excluded from a 1% increase limitation. The cost of weed control is the landowner's or land agency's responsibility.

Cost-share funds are also available to counties through a legislative appropriation budgeted at approximately $100,000 annually.

MONTANA NOXIOUS WEED LAW

Organization:

Every county in Montana is designated a weed district area. County commissioners appoint a weed board to administrate the weed control program. Each weed control district must develop a management plan. The plan must include goals and priorities, distribution and abundance of noxious weed species, and an estimate of personnel cost, operation, and equipment for the program.

Noxious Weed List:

The designated noxious weed list is established at the state level and must be followed by all counties. Individual counties also have the option to include additional weeds in their area.

Funding:

Funding for weed control is collected at the county level. A county can levy up to a 2 mills to fund the weed district. Funding may also be derived from the general county fund, however that doesn't happen very often.

Appendix 2

A state grant program exists which counties or groups within a county may solicit. The cost-share program is funded from a $2.5 million Noxious Weed Trust Fund financed by interest from the Trust and a $1.50 per licensed vehicle surcharge. State officials then distribute funds through a competitive grants program based on recommendations from a citizens Advisory Council. Most requests are received from local cooperatative landowner groups within a county, targeting control of a specific weed.

UTAH NOXIOUS WEED LAW

Organization:

Each county is designated as a weed district. There is a County Commissioner over the program that hires a County Weed Supervisor to conduct and enforce the program through the County Weed Board. Any management plans, etc., are completed on a county basis. The counties also provide the funds for any weed control completed in their area of jurisdiction. Noxious weed control is the responsibility of all land owners. Control can be done by the county and the expenses added to the tax bill. However, this is rarely done.

There is a state noxious weed committee that was created in an amendment to the Utah Noxious Weed Act in 1989. Membership is as follows:

> Utah Department of Agriculture, USU Agricultural Experiment Station, USU Extension Service, Utah Association for Counties, Private Agricultural Industry

Noxious Weed List:

The designated noxious weed list is established at the state level and must be followed by all counties. Individual counties add noxious weeds to their official list. If someone wanted to get a weed listed on the state they would petition the State Department of Agriculture with the information about the plant. The Department will than make the decision whether the weed should be list or not.

In addition to the official list of state noxious weeds there is also a list of what is call <u>New and Invading Potential Noxious Weeds</u>.

Appendix 2

Funding:
There is no tax or levy set up to fund the noxious weed program state wide. Each county develops their own means of funding for any work on noxious weeds.

Policy Statement

New and Invading Potential Noxious Weeds

The Commissioner of Agriculture has declared 17 weeds as Noxious Weeds in the State of Utah. This was done under authority of the Utah Noxious Weed Act. These weeds were declared noxious because of their threat to the agricultural industry in the State. the are injurious to public health, crops, livestock, land, or other property.

The Department recognizes that there are other weeds that have the potential to become a threat to agriculture and may at some time be considered for declaration as a State Noxious Weed. Many of them are found in neighboring states. They may be considered as invading weeds in those states or may have been declared noxious weeds.

Department—Intent—Desire—Warning

1. It is the intent of the Department to publish a list of New and Invading weeds that have been identified as having the potential to become a State Noxious Weed. Also,

2. It is the intent of the Department to monitor New and Invading weeds and to collect information and data pertaining to them. Also,

3. It is the desire of the Department to keep the number of declared Noxious Weeds to a minimum.

Therefore; it is the Department of Agricultures desire and intent to impress individuals and agencies with the need and importance to be aware of New and Invading

weeds. And to issue a warning concerning the neglect of these weeds.

County weed departments, private property owners, farmers, ranchers, and state and federal agencies are encouraged to be aware of the presence of these New and Invading weeds on their property. The Department encourages all property owners to develop and implement control measures that will control and prevent the spread of these invading weeds. It is the desire of the Department to prevent these invading weeds from reaching a level of infestation that would require them to be declared a State Noxious Weed. Counties where known infestations of these weeds occur are encouraged to declare these New and Invading weeds as County Noxious Weeds. And to develop and implement control programs against these weeds.

WYOMING NOXIOUS WEED LAW

Organization:

All land within the state, including federal, state, private, and municipally owned lands, are included in a district. Weed and pest district boundaries and county boundaries are the same. Municipalities with a population of 5,000 or greater may establish and administer their own program. They receive 85% of funds collected within the city and 15% is retained by the county to provide technical assistance.

County commissions appoint a district board which oversees the district activities. District boards have certain duties and powers issued by state statutes. The district must employ a certified supervisor. Cost-share programs may be established at the discretion of the district board.

Noxious Weed and Pest List:

The noxious weed and pest list is designated at the state level between the State Board of Agriculture and the Wyoming Weed and Pest Council and must be followed by all districts. Individual districts may request that up to 2 additional weeds or pests be added to a declared list if it poses significant or detrimental threat within the district. The addition only applies to their districts.

Appendix 2

Funding:

Regular Program: Funding for the district program is derived from a one mill levy assessed upon all property within the county. This tax is not part of the general county or city mill levies. Funds collected are used to carry out the act within the district. Special funding may be requested from the state legislature. If a weed or pest is seriously endangering areas of the state, assistance in control may be provided by legislative appropriation for this purpose.

Weed and Pest Special Management Program: An additional one mill may be assessed within the county to implement the special management program. The option to initiate this program is at the discretion of the district board and county commissioners. If the program is implemented the district has to establish management zones, complete an inventory survey, and establish management criteria. Assistance to a district's coordinated program may also be provided by legislative appropriation.

Appendix 3

Federal Noxious Weed Laws, Lists, Regulations and Policies

I. Federal Agency Contacts

U.S. DEPARTMENT OF AGRICULTURE (USDA)

Agricultural Research Service (ARS)

Below is a list of federal agency contacts. Please contact the appropriate agency office for the most current federal laws, regulations, and guidelines for your area.

USDA General 202-720-USDA

USDA, Exotic & Invasive Weed Research
Western Regional Research Center
USDA, ARS
800 Buchanan Street
Albany, CA 94710
510-559-6127

USDA, ARS, National Program Staff
Weed Science
10300 Baltimore Blvd
Room 218, Building 005
BARC-WEST
Beltsville, MD 20705-2350
301-504-6470

Biological Control of Weeds
Grassland/Soil/Water Research Lab
USDA, ARS
808 East Blackland Road
Temple, TX 76502
254-770-6531

Remote Sensing Research Unit
USDA, ARS
2413 East Highway 83
Weslaco, TX 78596-8344
956-969-4824

USDA, ARS
Room 3
920 Valley Road
Reno, NV 89512
775-784-6057

USDA, ARS-NPA
P.O. Box 1109
1500 N. Central Ave
Sidney, MT 59270
406-482-2020
406-482-5038 Fax

Appendix 3

USDA-ARS-EBCL
European Biological Control Laboratory
Parc Scientifique Agropolis II
Montipelliar, France 34397
04.67.41.67.30 (phone)
04.67.04.56.20 (fax)

Animal Plant Health Inspection Service (APHIS)

USDA, APHIS
Plaza Office Building, A
1629 Avenue D, Suite 5
Billings, MT 59102
406-657-6282

Western Region
USDA, APHIS, PPQ
9580 Micron Avenue, Suite I
Sacramento, CA 95827
916-857-6102

USDA, APHIS, Plant Health Director
6200 Jefferson Street NE, Suite 130
Albuquerque, NM 87109-3434
505-761-3189

Phoenix Plant Protection Center
USDA, APHIS, PPQ
4125 East Broadway Road
Phoenix, AZ 85040
602-379-6014

USDA, APHIS, PPQ
4700 River Road
Room 4A09, Unit 133
Riverdale, MD 20737-1236
301-734-7839

USDA, APHIS, PPQ
Mission Plant Protection Center
Moore Field, PO Box 2140
Mission, TX 78572
210-580-7301

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USDA, APHIS, PPQ
504 West 17th Street, Suite 200
Cheyenne, WY 82001-4348
307-772-2323

Natural Resource Conservation Service

Plant Material Center, USDA, NRCS
1036 Miller Street SW
Los Lunas, NM 87031
505-865-4684

Forest Service

USDA Forest Service
Range Management Staff
Natural Resource Specialist
PO Box 96090
Washington, DC 20090-6090
202-205-0847

Washington Office

Forestry Services Laboratory, USDA, FS
2205 Columbia SE
Albuquerque, NM 87106
505-766-2384

Field Offices

Forest Service, USDA
Northern Region (R-1)
Federal Building
200 Broadway, PO Box 7669
Missoula, MT 59807-7669
406-329-3511

Forest Service, USDA
Rocky Mountain Region (R-2)
740 Simms Street
PO Box 25127
Lakewood, CO 80225
303-275-5350

Forest Service, USDA
Southwestern Region (R-3)
Federal Building
517 Gold Avenue, SW
Albuquerque, NM 87102
505-842-3292

Appendix 3

Forest Service, USDA
Intermountain Region (R-4)
Federal Building
324 25th Street
Ogden, UT 84401-2310
801-625-5352

Forest Service, USDA
Pacific Southwest Region (R-5)
630 Sansome Street
San Francisco, CA 94111
415-705-2874

Forest Service, USDA
Pacific Northwest Region (R-6)
333 SW 1st Avenue
PO Box 3623
Portland, OR 97208
503-808-2636

Forest Service, USDA
Southern Region (R-8)
1720 Peachtree Road, NW
Atlanta, GA 30367
404-347-2384

Forest Service, USDA
Eastern Region (R-9)
310 West Wisconsin Avenue, Room 500
Milwaukee, WI 53203
414-297-3693

Forest Service, USDA
Alaska Region (R-10)
709 W. 9th Street
PO Box 21628
Juneau, AK 99802-1628
907-586-8863

Forest Service, USDA
Northeastern Area - S&PF
5 Radnor Corporate Center, Suite 200
PO Box 6775
Radnor, PA 19087-4585
610-975-4111

Appendix 3

North Central Forest Experiment Station
1992 Folwell Avenue
St. Paul, MN 55108
612-649-5000

Northeastern Forest Experiment Station
5 Radnor Corporate Center, Suite 200
PO Box 6775
Radnor, PA 19087-4585
610-975-4222

Pacific Northwest Research Station
333 SW 1st Avenue
PO Box 3890
Portland, OR 97208
503-808-2592

Pacific Southwest Forest and Range Experiment Station
800 Buchanan Street, West Bldg
Albany, CA 94710-0011
PO Box 245
Berkeley, CA 94701-0245
510-559-6300

Rocky Mountain Research Station
240 West Prospect Road
Fort Collins, CO 80526-2098
970-498-1100

Southern Research Station
200 Weaver Blvd
PO Box 2680
Asheville, NC 28802
704-257-4300

Forest Products Laboratory
One Gifford Pinchot Drive
Madison, WI 53705-2398
608-231-9200

International Institute of Tropical Forestry
Call Box 25000
Rio Piedras, PR 00928-5000

UPR Experimental Station Grounds Botanical Garden
Rio Piedras, PR 00928
787-766-5335

Appendix 3

US DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Bureau of Indian Affairs
Aberdeen Area Office
115 4th Ave SE
Aberdeen, SD 57401

Bureau of Indian Affairs
Albuquerque Area Office
PO Box 26567, Mail Stop 300
Albuquerque, NM 87125-6567

Bureau of Indian Affairs
Anadarko Area Office
PO Box 368, US Hwy 281
Anadarko, OK 73005

Bureau of Indian Affairs
Billings Area Office
316 N 26th St.
Billings, MT 59101

Bureau of Indian Affairs
Muskogee Area Office
101 N 5th St
Muskogee, OK 74401-6202

Bureau of Indian Affairs
Navajo Area Office
PO Box 1060, Code 350
Gallup, NM 87305

Bureau of Indian Affairs
Phoenix Area Office
PO Box 10
Phoenix, AZ 85001

Bureau of Indian Affairs
Portland Area Office
911 NE 11th Ave
Portland, OR 97232-4169

Bureau of Indian Affairs
Sacramento Area Office
2800 Cottage Way, Room West 2550
Sacramento, CA 95825

Appendix 3

Bureau of Land Management

National Weed Team Leader (WO-220)
BLM Montana State office
5001 Southgate Drive
PO Box 36800
Billings, MT 59107-800
406-896-5279
406-896-5300 Fax

Washington Office Weed Control
BLM/WO 220, LS-314
1849 C Street NW
Washington, DC 20240
202-452-5053
202–452-5279 Fax

BLM, Alaska State Office
222 West 7th Avenue, Box 13
Anchorage, AK 99513-7599
907-271-3160

BLM, Arizona State Office
222 North Central Avenue
PO Box 555
Phoenix, AZ 85001-0555
602-417-9246

BLM, California State Office
2800 Cottage Way
Sacramento, CA 95825
916-978-4645

BLM, Colorado State Office
2850 Youngfield Street
Lakewood, CO 80215-7076
303-239-3725

BLM, Eastern States Office
7450 Boston Boulevard
Springfield, VA 22153
703-440-1667

BLM, Idaho State Office
1387 South Vinnell Way
Boise, ID 83709-1657
208-373-3824

Appendix 3

BLM, Montana State Office
5001 Southgate Drive
PO Box 36800
Billings, MT 59107-6800
406-896-5043

BLM, Nevada State Office
1340 Financial Boulevard
PO Box 12000
Reno, NV 89520-0006
775-861-6645

BLM, New Mexico State Office
PO Box 27115
Santa Fe, NM 87502-0115
505-438-7668

BLM, Lakeview District Office
HC 10 - Box 337
Lakeview, OR 97630-0055
541-947-6114

BLM, Utah State Office
324 South State Street, Suite 301
PO Box 45155
Salt Lake City, UT 84145-0155
801-539-4059

BLM, Wyoming State Office
5353 Yellowstone Road
PO Box 1828
Cheyenne, WY 82003-1828
307-775-6093

Fish & Wildlife Service

Division of Endangered Species
USDI, FWS
PO Box 1306
Albuquerque, NM 87103-1306
703-358-2106

Ecological Services Office
USDI, FWS
315 Houston Street, Suite E
Manhattan, KS 66502
785-539-3474

Appendix 3

USFWS
2233 Watt Avenue, Suite 120
Sacramento, CA 95825
916-979-2034

USFWS, Southern NV Office
1510 North Decatur Boulevard
Las Vegas, NV 89108
702-646-3499

Region 1 Integr. Pest and Weed Management
Coordin-Refuges and Wildlife
USDI, FWS (ARW-OPR)
911 NE 11th Avenue
Portland, OR 87232-4181
503-231-6172

Bureau of Reclamation

USDI Bureau of Reclamation
Denver Federal Center
PO Box 25007 (D-8220)
Denver, CO 80225-0007
303-445-2217

Geological Service - BRD

USGS-Biological Resources Division
6000 J St., Placer Hall
Sacramento, CA 95819
916-278-3261

USGS-Biological Resources Division
Building 24, Room 101
PO Box 5614
Flagstaff, AZ 86011
520-556-7311

USGS-Biological Resources Division
San Diego State University
San Diego, CA 92182-4614
619-594-4357

USGS-Biological Resources division
Department of Biology
University California
Riverside, CA 92521-0427
909-787-4719

Appendix 3

National Park Service

USDI, National Park Service
2101 Oakridge Drive, Suite 350
Ft. Collins, CO 80525-5596
970-225-3542

DEPARTMENT OF DEFENSE

Department of the Army
Waterways Experiment Station
Attn: CEWES-ER-A
3909 Halls Ferry Road
Vicksburg, MS 39180-6199
601-634-3182

Natural Water Resources
49 CES/CEV
550 Tabosa Avenue
Holloman AFB, NM 88330
505-475-3931

Commander
Building 331
Ft. Hunter Liggett, CA 93928-7111
831-386-2305

Natural Resources Manager
49 CES/CEV
550 Tabosa Avenue
Holloman Air Force Base, NM 88330
505-475-3931

Appendix 3

II. Federal Noxious Weed Act

The following plants, seeds, or other parts capable of propagation are within the definition of a "noxious weed" under the Federal Noxious Weed Act of 1974 (7 USC 2802(c)). Listed noxious weeds maybe moved into or through the United States only under penflit from the USDA Plant Protection and Quarantine programs, and under conditions that would not involve a danger of disseminating the weeds.

A. Aquatic Weeds:

Azolla pinnata
Eichhornia azurea
Hydrilla veflicillata
Hygrophila polysperma
Ipomoea aquatica
Lagarosiphon malor
Limnophila sessiliflora
Monochoria hastata
Monochoria vaginalis
Ottelia alismoides
Sagittaria sagittifolia
Salvinia auriculata
Salvinia biloba
Salvinia herzogii
Salvinia molesta
Sparganium erectum

B. Parasitic Weeds:

Aeginetia ssp.
Alectra ssp.
Cuscuta spp. (See 7 CFR 360.200 for i3 exceptions)
Orobanche spp. (See 7 CFR 360.200 for 13 exceptions)
Striga spp.

C. Terrestrial Weeds:

Ageratina adenophora
Alternanthera sessilis
Asphodelus fistulosus
Avena sterilis
(including *A. ludoviciana)*
Borreria alata
Carthamus oxyacantha
Chrysopogon aciculatus
Commelina benghalensis
Crupina vulgaris
Digitara scalarum
Digitaria velutina
Drynana arenarioiaes
Emex australis
Emiex spinosa
Galega officinalis
Herncteum mantegazzianum
Impernia brasiliensis
Imperata cylndrica
Ipomoea triloba
Ischaemum rugosum
Leptochloa chinensis
Lycium ferocissimum
Melaleuca quinquenervia
Melastoma malabathricum
Mikania cordata
Mikania micrantha
Mimosa invisa
Mimosa pigra var. pigra
Nassella trichotoma
Opuntia aurantaca
Oryza longistaminata
Oryza punctata
Oryza rufipogon

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Paspalum scrobiculatum
Pennisetum clandestinum
Pennisetum macrourum
Pennisetum pedicellatum
Pennisetum polystachion
Prosopis alpataco
Prosopis argentina
Prosopis articulata
Prosopis burkartii
Prosopis caldenia
Prosopis calingastana
Prosopis campestris
Prosopis castellanosii
Prosopis denudans
Prosopis elata
Prosopis farcta
Prosopis ferox
Prosopis fiebrigii
Prosopis hassleri
Prosopis humilis
Prosopis kuntzei
Prosopis pallida
Prosopis palmeri
Prosopis reptans
Prosopis rojasiana
Prosopis ruizleali
Prosopis ruscifolia
Prosopis sericantha
Prosopis stombulifera
Prosopis torquata
Rottboellia exaltata
Rubus fruticosus
Rubus moluccanus
Saccharum spontaneum
Salsola vermiculata
Setaria pallide-fusca
Solanum torvum
Solanum viarum
Tridax procumbens
Urochloa panicoides

III. Agency Policies

U.S. DEPARTMENT OF AGRICULTURE

Forest Service

Definition:

Integrated Pest Management (IPM) is the consideration, evaluation, and use of alternatives available in resource management to prevent, eradicate, or mitigate noxious weeds and their impact.

Management of noxious weeds embodies those activities consistent with noxious weed objectives. Management activities may include education and efforts to prevent, eradicate, reduce, confine, or control noxious weeds through mechanical, biological, chemical, or cultural treatments, or other measures as appropriate.

Noxious weeds are those plant species designated as such by the Secretary of Agriculture, Secretary of Interior, or by state law or regulation. Generally, noxious weeds will possess one or more of the characteristics of being non-native, aggressive and difficult to manage, parasitic, or a carrier or host of serious insects or disease.

The **objectives** of the National Forest Service for noxious weed management include:

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1. Implement an integrated pest management approach in management of noxious weeds through cooperation, coordination, and communication among federal, state, and local agencies, organizations and individuals.
2. Provide, promote, and facilitate continuing research and technology developments for implementing integrated pest management approaches for managing noxious weeds.
3. Cooperate with other land management agencies in developing mutually compatible noxious weed management policies.
4. Provide leadership for partnerships with state and local weed control organizations.
5. Increase the general level of knowledge, awareness and commitment to noxious weed management.
6. Explore, promote, and encourage beneficial uses of noxious weeds.

The **policy** of National Forest Service noxious weed management is as follows:

1. All forest land management plans will address an interdisciplinary approach to noxious weed management through plan standards and guidelines.
2. Priority for treatment of noxious weeds shall be the prevention of potential invaders first, control of new and invading species second, followed by management efforts on established stands. Treatment efforts shall be cost-effective and coordinated with cooperators.
3. Emphasize preventing the establishment of noxious weeds in all land management projects and activities.
4. Within budgetary constraints, the Forest Service shall control, to the extent practical, noxious weeds on all National Forest System lands. All resources program areas of the National Forest System are responsible for noxious weed management, prevention, and control.
5. Seed planted on National Forest System lands shall be certified and be noxious weed seed-free under the guidelines set in the Secretary of Agriculture's Seed Certification Policy. Coordinate with state certification programs to meet state standards.
6. Encourage cooperative research, development and application programs that define the ecological requirements of noxious weeds and cost-effective management strategies.

7. Cooperate with national and international agencies in the research and introduction of biological control agents for noxious weeds.
8. Encourage continuing education of integrated pest management approaches for noxious weeds through state extension services, state universities, and state Departments of Agriculture.
9. Encourage research, development, and the use of desirable plant species in revegetation and fire rehabilitation projects that are competitive with noxious weeds.
10. Emphasize human and environmental safety in carrying out all programs and activities relating to noxious weed control.
11. Assess all proposed control projects to determine the factors which favored the initial establishment and spread of noxious weeds. Design management to correct (where possible) those conditions to reduce the need for future treatment(s).
12. Cooperate in the development of state and federal interagency data bases, training, educational materials and handbooks for management of noxious weeds.
13. Support the USDA National Agricultural Pest Information System by providing National Forest System noxious weed data.
14. Cooperate in the development of an inter-agency system to inventory, monitor, and evaluate the management of noxious weeds.

Responsibility:

The Forest Supervisor:

1. Prepare a noxious weed action plan, tied to the Forest Plan, that emphasizes integrated management, prevention, and includes inventory, treatment, monitoring, and public awareness and participation programs.
2. Monitor the intensity and extent of noxious weed infestations and provide an estimate on the current and potential impacts to all resources on National Forest System lands.

Authority:

1. The authority for noxious weed management on National Forest System lands is in 36 CFR 222.8
2. USDA Departmental Regulation Number 9500-10
3. Federal Noxious Weed Act of 1952 [PL 93-629]
4. Carlson-Foley Act of 1968 [PL 90-583]

5. Halogeton Golmeratus Control Act of 1952 [USC 1651-1656]
6. Federal Seed Act of 1939 [7 USC 1551-1611]
7. Federal Plant Pest Act of 1957 [7 USC, Section 150aa-jj]
8. See FSM 2201 for additional legislative authorities.)

Funding:

All resource program areas of the National Forest Service are responsible for noxious weed management, prevention, and control. Direct funding for noxious weed treatment programs is within the range management budget.

U. S. DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

Definition:

Although noxious weed management is not considered a historic trust responsibility, it fits within the realm of protection of the natural resources. A Ten-year Noxious Weed Management Plan was developed in the late 1980s. this plan requires a 100 percent match of the BIA dollars by each funded project at the reservation location. Currently, more detailed criteria for funding of projects are being developed. These criteria will revise/update the current plan.

Responsibility:

The Bureau of Indian Affairs (BIA) has the primary fiduciary (trust) responsibility on approximately 56 million acres of Indian owned lands. This involves protection of the resources along with oversight of the proper development and promotion of the monetary value of those resources. There are more than 500 federally-owned tribes including 200 village groups in Alaska. The number of Indian reservations is about 280. The BIA consists of three administrative levels - Central Office, 12 Regional Offices, and numerous Agency Offices (at the reservation locations).

Funding:

Currently, the BIA funding for Noxious Weed Management is 1.9 million dollars. This is divided among 11 of the 12 BIA Regions based upon request, proven need, and some basic funding criteria.

Appendix 3

Federal Laws on Native American Religion: These laws affect all actions on Federal lands.

1. Archaeological Resources Protection Act (ARPA, P.L. 96-95, as amended, P.L. 100-555, P.L. 100-588).
2. American Indian Religious Freedom Act (AIRFA, P.L. 95-341).
3. National Historic Preservation Act (NHPA, P.L. 89-665, as amended, P.L. 91-243, P.L. 93-54, P.L. 94-422, P.L. 94-458, P.L. 96-199, P.L. 96-244, P.L. 96-515).

Bureau of Land Management

Definition:

Integrated Pest Management (IPM) is the consideration, evaluation, and use of alternatives available in resource management to prevent, eradicate, or mitigate noxious weeds and their impact.

Management of noxious weeds embodies those activities consistent with noxious weed objectives. Management activities may include education and efforts to prevent, eradicate, reduce, confine, or control noxious weeds through mechanical, biological, chemical, or cultural treatments, or other measures as appropriate.

Noxious weeds are those plant species designated as such by the Secretary of Agriculture, Secretary of Interior, or by state law or regulation. Generally, noxious weeds will possess one or more of the characteristics of being non-native, aggressive and difficult to manage, parasitic, or a carrier or host of serious insects or disease.

The **objectives** of the Bureau of Land Management for noxious weed management include:

1. Implement an integrated pest management approach in management of noxious weeds through cooperation, coordination, and communication among federal, state, and local agencies, organizations and individuals.
2. Provide, promote, and facilitate continuing research and technology developments for implementing integrated pest management approaches for managing noxious weeds.
3. Cooperate with other land management agencies in developing mutually compatible noxious weed management policies.
4. Provide leadership for partnerships with state and local weed control organizations.

5. Increase the general level of knowledge, awareness and commitment to noxious weed management.
6. Explore, promote, and encourage beneficial uses of noxious weeds.

The **policy** of The Bureau of Land Management noxious weed management is as follows:

1. All the BLM land management plans will address an interdisciplinary approach to noxious weed management through plan standards and guidelines.
2. Priority for treatment of noxious weeds shall be the prevention of potential invaders first, control of new and invading species second, followed by management efforts on established stands. Treatment efforts shall be cost-effective and coordinated with cooperators.
3. Emphasize preventing the establishment of noxious weeds in all land management projects and activities.
4. Within budgetary constraints, the BLM shall control, to the extent practical, noxious weeds on all the BLM lands. All resources program areas of the BLM are responsible for noxious weed management, prevention, and control.
5. Seed planted on the BLM lands shall be certified and be noxious weed seed-free under the guidelines set in the Secretary of Interior's Seed Certification Policy. Coordinate with state certification programs to meet state standards.
6. Encourage cooperative research, development and application programs that define the ecological requirements of noxious weeds and cost-effective management strategies.
7. Cooperate with national and international agencies in the research and introduction of biological control agents for noxious weeds.
8. Encourage continuing education of integrated pest management approaches for noxious weeds through BLM, state extension services, state universities, and state Departments of Agriculture.
9. Encourage research, development, and the use of desirable plant species in revegetation and fire rehabilitation projects that are competitive with noxious weeds.
10. Emphasize human and environmental safety in carrying out all programs and activities relating to noxious weed management.

11. Assess all proposed control projects to determine the factors which favored the initial establishment and spread of noxious weeds. Design management to correct (where possible) those conditions to reduce the need for future treatment(s).
12. Cooperate in the development of state and federal interagency data bases, training, educational materials and handbooks for management of noxious weeds.
13. Cooperate in the development of an inter-agency system to inventory, monitor, and evaluate the management of noxious weeds.

Responsibility:

The BLM director formulates noxious weed control policy within the confines of the Department of the Interior policy guidelines. The National Weed Team is responsible for the overall guidance in pest management programs for the BLM Partners Against Weed Action Plan, 1996, and Communications Plan, 1996. Each BLM state director then reviews the pest control programs for his/her area. The BLM State Weed/Pesticide Coordinator is responsible for compliance with label restrictions where pesticides are the chosen method. The actual planning and implementation of the pest control plans is the duty of each field office manager. The field office manager coordinates all plans with appropriate State agencies, other interested agencies, user groups and the general public.

Authority:

1. Federal Land Policy and Management Act of 1976.
2. Public Rangelands Improvement Act of 1978.
3. Carlson-Foley Act of 1968 [PL 90-583].
4. Federal Noxious Weed Act of 1974, as amended by Sec. 15 - Management of Undesirable Plants on Federal Lands, 1990 [PL 93-629].
5. Halogeton Golmeratus Control Act of 1952, [USC 1651-1656].
6. Federal Seed Act of 1939 [7 USC 1551-1611].
7. Federal Plant Pest Act of 1957 [7 USC, Section 150aa-jj].
8. Section 124 of the Omnibus Consolidated Appropriations Act of 1997 also known as the Wyden Amendment [PL 104-208].
9. Final Environmental Impact Statement Vegetation Treatment on BLM Lands in 13 Western States (1991).

10. BLM final Northwest Area Noxious Weed Control Program Environmental Impact Statement (1985).
11. BLM Final Supplemental Environmental Impact Statement for Noxious Weds (1987).
12. BLM Departmental Manual 517.
13. BLM Departmental Manual 609.
14. BLM Manual 9011 and Handbook H-9011-1.
15. BLM Manual 9014.
16. BLM Manual 9015.

Funding:

Currently, funding for noxious weed control is derived either from the Range Management Division (special appropriations) or from Range Improvement funds, acquired through grazing fees. Additional funds can be derived from other subactivity funds or sources.

National Park Service

Definition:

The NPS defines nonnative species (all are exotic or alien and can be designated as noxious) as any plant or animal that occurs in a given location as a result of direct, indirect, deliberate or accidental actions by humans. This definition allows the NPS to recognize and distinguish between changes to park resources caused by natural processes of plants and animals, such as natural range expansions, and those changes caused by humans.

Responsibility:

The National Park Service (NPS) is required by law to keep the parks as unaltered by human activities as possible. As early as 1933, the NPS policy recognized the harmful effects of nonnative plants and animals. Today the NPS has a strong and clear policy on managing nonnative species in the parks. IN addition to national, state, and local laws, parks are currently guided by three primary internal documents to manage nonnative species including: USDI NPS MANAGEMENT POLICIES (1988), NATURAL RESOURCES MANAGEMENT GUIDELINE (NPS-77), and the individual parks NATURAL RESOURCE MANAGEMENT PLAN. Many parks also have a specific management plan which deals with management of nonnative species.

Invasive nonnative plants currently infest an estimated seven million acres of NPS lands. Managing invasions of nonnative

species requires a coordinated strategy based on cooperation among all land managers and on the principles of integrated pest management (IPM). IPM managers must clearly understand the biology and ecology of the plant and its environment before developing management strategies. Armed with this scientifically sound information, resource managers choose the most effective, economical, environmentally safe, and socially acceptable method of management. IPM embraces the full range of management techniques, including cultural, physical (mechanical), chemical and biological control.

Program implementation rests with individual park staff, frequently involving staff from all divisions, but funded by park resource managers. park staff receives technical support from regional and national specialists that monitor program efficacy and approve the use of specific herbicides.

Funding:

The NPS spends millions of dollars each year combating nonnative plants in an effort to preserve park resources, and still the problem is growing. Funding for nonnative plant control primarily comes from a parks general operating fund. Park superintendents and division chiefs allocate operating funds according to park priorities. Occasionally special programmatic funds [ie Federal Highways revegetation funds, Natural Resource Preservation Program (NRPP), Natural Resource Preservation, Restoration, and Mitigation Program (PRAM)] are available and have played a significant role in program development and continuity.

NOTE: These are the only Federal Agencies that submitted information for this document.

Appendix 4

North American Weed Free Forage Certification Standards

INTRODUCTION

These standards were formerly known as “Regional Weed Free Forage Certification Standards”.

There is a growing demand in North America for the use at certified weed free forage and mulch as a preventive program in Integrated Weed Management Systems to limit the spread of noxious weeds. The goal of this standard is to provide a guideline to set minimum requirements for uniform participation of the various provinces and states in the program.

The states and provinces Alberta (AB), Idaho (ID), Montana (MT), Nevada (NV), Oregon (OR), South Dakota (SD), Washington (WA), Wyoming (WY), Colorado (CO), Nebraska (NE), North Dakota (ND), Kansas (KS), and Utah (UT), have agreed to the following standards.

I. STANDARDS

The standards are designed

* to provide some assurance to all participants that forage certified through this program meets a minimum acceptable standard.
* to provide continuity between the various provinces and states in the program
* to limit the spread of noxious weeds through forage and mulch

Forage shall be free of those noxious weeds or undesirable plant species identified in Appendix 4-A.

1. Forage shall be inspected in the State/Province of origin by proper officials or authority.
2. Forage shall also be inspected in the field of origin (field shall include surrounding ditches, fence rows, roads, easement rights-of-way, or a buffer zone surrounding the field.)
3. Field shall be inspected prior to cutting or harvesting by the proper officials or authority
4. Forage which contains any noxious weeds, or undesirable plant species, as identified in Appendix 4-A, may be certified if the following requirements are met.
    a. Field upon which the forage was produced was treated to prevent seed formation or seed ripening to the degree that there is no danger of

dissemination of the seed, or any injurious portion thereof from such noxious weeds, or undesirable plant species, or the propagating parts of the plant are not capable of producing a-new plant.

b. Noxious weed(s) or undesirable plant species was treated not later than rosette to bud stage, or boot stage for perennial grass species classified as weeds, prior to cutting or harvesting.

c. Treatment method can include but is not limited to: 1) burning, 2) mowing, cutting or rogueing, 3) mechanical methods,. or 4) chemicals.

5. An inspection certificate (Appendix 4-B) shall document that the above requirements have been met (1.4) based upon a reasonable and prudent visual inspection as outlined in Appendix .

6. Interstate shipment of forage shall be accompanied by a transit certificate (Appendix 4-C) and/or certification marking (Appendix 4-D) issued by proper officials or authority in the state/province of origin. Shipments into restricted areas not accompanied by the proper transit certificate or certification marking may be rejected. (A standardized regional certification marking template has been developed. (Appendix 4-D) Use of the standard regional marking template is recommended. A certification marking system will ultimately be developed by the proper officials or authority in the state/province of origin.)

7. Exemption:

a. Pellets and pelleted milled feeds may be certified in the field or may be certified based on official testing by a state/province seed lab for weed seed viability. Proof of results shall be submitted to the State/Province Department of Agriculture.

8. If a transit certificate is required, only an original transit certificate will be acceptable. Using a transit certificate or certification marking for forage from fields other than the one specified shall constitute a violation of the North American Weed-Free Forage Standards and local authorities may take actions.

Disclaimer: North American Weed Free Forage Certification Standards (formerly known as Regional Weed Free Forage Certification Standards) may not meet the forage quality standards

Appendix 4

adopted by the Hay Marketing Task Force of the American Forage and Grassland Council.

Attached as part of the regional forage certification standards is the Regional Designated Noxious Weed list (Appendix 4-A). For additional information, contact the North American Weed Management Association, Phone: 970-229-0352; Fax: 970-223-3779.

Appendix 4-A:	Regional Designated Noxious Weed List or Undesirable Plant Species List
Appendix 4-B:	Inspection Certificate Standards
Appendix 4-C:	Transit Certificate Standards
Appendix 4-D:	Forage Tag Template
Appendix 4-E:	Field Inspection Standards
Appendix 4-F:	Definitions
Appendix 4-G:	Addition Or Deletion To The Regional Weed List

Appendix 4

Appendix 4-A Regional Noxious Weed List

Designated Noxious Weed List or Undesirable Plant Species List

Absinth wormwood (Artemisia absinthium) ND, WA, [P] [F]
Bermdagrass (Cynodon dactylon) UT [P] [F]
Black henbane (Hyoscyamus nicer) AB, ID, WA [A or B] [F]
Buffalobur (Solanum rostratum) ID, OR, WA [A][N or F]
Canada thistle (Cirsium arvense) AB, ID, KS, MT, NE, ND, NV, OR, SD, UT, WA, WY [P] [F)
Common burdock (Arctium minus) AB, WY [B) [F]
Common crupina (Crupina vulgaris) ID, MT, OR, SD, WA [A] [F]
Common St. Johnswort (Hypericum perforatum) MT, NV, OR, SD, WA [P] [F]
Common tansy (Tanacetum vulgar) AB, WA, WY [P] [F]
Dalmatian toadflax (Linaria dalmatica) AB, ID, MT, NV, OR, SD. WA, WY [P] [F]
Diffuse knapweed (Centaurea diffusa) AB, CO, ID, MT, NV. OR, SD UT, WA, WY [B or P] [F)
Dyers woad (Isatis tinctoria) ID, MT, OR, UT, WA, WY [A or B or [P] [F]
Field bindweed (Convolvulus arvensis) AB, KS, ND, MT, OR, SD, UT, WA, WY [P) [F]
Hemp (marijuana) (Cannabis sativa) ND [A] [F]
Hoary cress (Cardaria spp.) AB, ID, KS, MT, ND, NV, OR, SD, UT WA, WY [P] [F]
Horsenettle (Solanum carolinense) NV [P] [N]
Houndstongue (Cynoglossum officinale) WA, WY [B] [F]
Johnsongrass (Sorghum halepense) ID, KS, NV, OR, SD, UT, WA [P] [F]
Jointed goatgrass (Aegilops cylindrica) ID, WA [A] [F]
Leafy spurge (Euphorbia esula) AB, CO, ID, KS, MT, NE, ND, NV, OR, SD, UT, WA, WY [P] [F]
Matgrass (Nardus stricta) ID, OR [P] [F]
Meadow knapweed (Centaurea pratensis) ID, OR, WA (P] [F]
Medusahead (Taeniatherum caput-medusae) NV, OR, UT [A) [F]
Milium (Milium vernale) ID [A) [F]
Musk thistle (Carduus nutans) AB, ID, KS, NE, ND, NV, OR, SD, UT, WA, WY [B] [F]
Orange hawkweed (Hieracium aurantiacum) MT, ID, WA [P] [F]
Oxeye daisy (Chrysanthemum leucanthemum) AB, WA, WY [P] [F]
Perennial pepperweed (Lepidium latifolium) ID, ND, OR, SD, UT WA, WY [P] [F]
Perennial sorghum (Sorghum almum) UT [P] [F]

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Perennial sowthistle (Sonchus arvensis) AB, ID, ND, NV, SD, WA, WY [P] [F]
Plumeless thistle (Carduus acanthoides) NE, SD, WA, WY [A or B] [F]
Poison hemlock (Conium maculatum) ID, NV, OR, WA [B] [F]
Puncturevine (Tribulus terrestris) ID, WA [A] [F]
Purple loosestrife (Lythnlm salicaria) AB, ID, MT, OR, SD, WA, WY [P] [F]
Quackgrass (Agropyron repens) AB, KS, OR, UT, WY [P] [F]
Rush skeletonweed (Chondrilla juncea) ID, MT, OR, SD, WA [P] [F]
Russian knapweed (Centaurea repens) AB, CO, ID, KS, MT, ND, NV, SD, UT, WA, WY [P] [F]
Scentless chamomile (Anthemis arvensis) AB [P] [F]
Scotch broom (Cytisus scoparius) ID, WA [P] [F]
Scotch thistle (Onopordum acanthium) ID, NV, OR, UT, WA, WY [B] [F]
Sericea lespedeza (Lespedeza cuneata) KS [P] [F]
Silverleaf nightshade (Solanum elaeagnifolium) ID, OR, WA [P] [N or F]
Skeletonleaf bursage (Ambrosia tomentosa) ID, WA, WY [P] [N or F]
Spotted knapweed (Centaurea maculosa) AB, CO, ID, MT, ND, OR, SD UT, WA, WY [B or P] [F]
Squarrose knapweed (Centaurea virgata) OR, UT [P] [F]
Sulfur cinquefoil (Potentilla recta) MT [P] [F]
Syrian beancaper (zygophyllum fabago) ID, WA [P] [F]
Tansy ragwort (Senecio jacobaea) ID, OR, WA, MT [B or P] [F]
Toothed spurge (Euphorbia dentata) ID [A] [N or F]
Wild oats (Avena fatua) AB, WY [A] [F]
Wild proso millet (Panicum miliaceum) OR, WY [A] [F]
Yellow hawkweed (Hieracium pratense) ID, WA, MT [P] [F]
Yellow starthistle (Centaurea solstitialis) AB, ID, MT, NV, OR, SD, UT, WA [A] [F]
Yellow toadflax (Linaria vulgaris) AB, ID, OR, SD, WA, WY [P] [F]

Forage (feed, hay, straw or mulch) will be inspected in the field or origin (field will include ditches, fence rows, roads, easement, right-of-way, or buffer zone, surrounding the field). Field will be inspected for the fifty-three (53) weed species listed above prior to cutting or harvesting. The number of weed species are subject to change due to additional states or provinces joining the association or the addition of other weed species added to State Noxious Weed lists.

[A] Annual
[N] Native
[B] Biennial
[P] Perennial
[F] Foreign Origin

Appendix 4

Appendix 4-B Inspection Certificate Standards

Certificate of Inspection Minimal Requirements:

1. State agency information (address and phone number).
2. County agency information (address and phone number).
3. Inspection Certificate numbering system.
4. Producer name, address, and phone number).
5. Legal description of property being inspected or field number.
6. Acres inspected.
7. Package/Bale size.
8. Number of bales or tonnage.
9. Commodity/Forage type.
10. “Meets Regional Standards” statement.
11. Inspection date.
12. Inspector signature.
13. Comment section.

Appendix 4-C Transit Certificate Standards

Transit Certificate Minimal Requirements:

1. State agency information (address and phone number).
2. County agency information (address an~d phone number).
3. Transit Certificate numbering system.
4. Transporter name, address, phone number.
5. Consignee name, address, phone number.
6. Specific destination.
7. Reference to Inspection Certificate number.
8. Comments section.
9. Commodity/Forage type.
10. Package/bale size.
11. Number of bales or tonnage.
12. Type of Certification Marking used.
13. Issuer signature, Title, and phone number.
14. Issue Date.
15. Statement: “Only original copies are accepted”.

Appendix 4

Appendix 4-D Forage Tag Template

Forage Identification Requirements

1. The words - “North American (or Regional) Weed Free Forage Certification Program”.
2. A number system (for tracking purposes).
3. Province/state of issue.
4. Province/state telephone number (responsible official).
5. A statement that the product is “Certified to the North American (or Regional) Standards”.
   or
. Special blue and orange twine.

Appendix 4-E Field Inspection Standards

Minimum Guidelines For Field Inspections:

The inspector will follow the following inspection procedures

1. There shall be a minimum of two entry points per field
2. There shall be minimum of one entry point per each 10 acres.
3. Each point of entry shall be at least 150 feet into the field, and each additional 150 feet traveled shall constitute an entry point. Travel shall be uninterrupted, proceeding through the field being inspected.
4. The entire field border shall be walked or driven.
5. Fields shall be inspected within 10 days prior to harvest.
6. The storage area shall also be inspected and meet the standards.
7. An inspector may not inspect fields of which said inspector has ownership or financial interest.

Appendix 4

Appendix 4-F Definitions

1. Certification Markings - tags, blue and orange colored twine, and galvanized wire.
2. Cubes - hay harvested with equipment which forms the hay into small compact self-binding units. These are not considered pellets as defined in this document and therefore the field of origin must be certified.
3. Forage - hay, straw, mulch, cubes and pellets.
4. Noxious Weeds - those weeds including any weed seed or propagative plant parts, designated by the Regional Weed Free Forage Committee
5. Pellets - agglomerated feed formed by compacting and forcing through die openings by a mechanical process. If heat is not used in the process, the field of origin must be certified.
6. Proper official/authority
   A. Representative of that State's Dept. of Agriculture.
   B. Weed Supervisor or Weed Superintendent.
   C. University Extension Agent.
   D. An individual designated by that State's law or regulations. This individual will be trained and certified in accordance with the state's/province's standard operating procedures.

Appendix 4-G Addition Or Deletion To The Regional Weed List

The following procedures should be followed for the addition or deletion of species to the Regional Weed List.

Criteria for species considered for the regional list.

1. Identified as a problem or potential problem by a state/province.
2. A petition be sent to the RWFF committee from a state/province Department of Agriculture or other authority for noxious weeds requesting listing to the Regional Weed List..(Petition should contain a risk assessment with information on impacts to natural resources and forage resources at state/province and/or regional level).

Species considered for deletion should show why the species is no onger a problem using criteria of #2 above.

Appendix 4

Procedures for listing a species.

1. Petitioner send copy of the request to add or delete a species to the RWFF Committee Chairman 90 days before the RWFF Committee Meeting.
2. Request should include a risk assessment on impacts to natural resources and forage resources, a description of the plant and 3 color slides (Kodachrome 64 if possible).
3. The RWFF Committee Chairman will mail information packets to committee members 60 days in advance of the committee meeting.
4. The proposed species should be listed in the NAWMA logue and also on the NAWMA Home Page before the committee meeting.

Appendix 5

Guidelines for Public Meetings

This section offers guidelines and a helpful checklist for conducting a successful public meeting.

Keep It Simple, to the Point, and Brief!

Keep the Tone of the Meeting Positive at ALL Times!

I. Determine Meeting Objective

A. Define the purpose of this meeting and what you hope to accomplish.
B. Define who should be invited.
   1. Identify and invite local residents known to be interested and active in weed management.
   2. Personally contact the key people you want to participate (who can challenge or block a decision?).
   3. Make sure key agencies are represented (who can make decisions for the agency?).
   4. Make sure the group is broad-based.
   5. Keep it local (hold several meetings if necessary to accomplish this).

II. Organize The Meeting

A. Type of Meeting - Presentation, feedback, problem solving, decision-making, combination.
B. Define clear desired outcomes.
C. Design effective agendas (see worksheet in this section).
   1. Determine length of the meeting (keep the meetings short).
   2. Identify who will serve as chairperson, meeting manager, facilitator, and recorder.
C. Keep discussion centered on the agenda (form a WMA, determine the best management options, treatment priority, etc.).
D. Stay on time.
E. Form a Board of Directors or Steering Committee to keep the project progressing.
   1. Choose a broad-based board or committee.
   2. Keep board/steering committee to less than 10 members.

III. Anticipate and Provide Meeting Materials (see checklist at end of this section)

A. Flip charts or overheads.
B. Markers.
C. Maps to identify areas to be discussed.

Appendix 5

D. Coffee, refreshments (Be sensitive to your audience and the time of the meeting).

IV. Decision-Making Process

A. Clearly define the decision making process.
B. How will decisions be made?
   1. Consensus.
   2. Majority vote.
   3. One person.
C. Who will be the final decision maker?
   1. Manager.
   2. Group.
   3. Some other manager or group.

V. Conduct Productive Meetings

A. Get everyone involved.
B. Facilitate the discussion to keep it on track.
C. Use a strategy for solving problems and responding to opportunities.
D. Build high quality, consensus decisions.
   1. Consensus decisions are built on a series of agreements
   2. Consensus decisions agree with desired outcomes

VI. Insure Good Meeting Follow-up

A. Evaluate the effectiveness of the meetings.
B. Organize the information produced.
C. Produce useful minutes.
D. Plan for implementation of decisions and future meetings.

✓ Checklist for Setting up A Public Meeting

- [ ] Reserve an appropriate room and equipment
- [ ] Decide on the seating arrangement
- [ ] Design an agenda
- [ ] Announce the meeting and an agenda to the identified target audience in advance
- [ ] Make appropriate charts and overheads (ie - outline purpose, decisions to be made, needed information, etc.)
- [ ] Arrange for refreshments
- [ ] Make sure key decision makers and community leaders receive invitations to the meeting
- [ ] Arrive at the meeting room early to double check the room arrangements, verify any audio/visual equipment needed is in proper working condition, and display any charts or brochures, or other information
- [ ] _____
- [ ] _____

Meeting Preparation Form

Action Planning Worksheet for Meeting

Date _____ Place _____

Why:
Identify the need for the meeting and other potential ways to solve the problem.

Who:
Identify key participants who have relevant expertise, are concerned, have the power to make decisions, have the power to challenge or block the decisions, or have influence on the community.

Desired Outcomes:
Identify the desired outcome of the meeting.

Determine what success will look like?

Specifically, identify what will be accomplished?

Type:
Identify the type of meeting to be held: presentation, feedback, problem-solving, decision-making, or combination.

Length:
Determine a reasonable length of time for of the meeting.

Roles:
Identify who will fulfill key roles in the meeting:

Moderator/Chair (open the meeting, keep it moving).

Facilitator (keep the meeting participants on track making decisions and plans).

Recorder (keep accurate notes of decisions made. Write up reports as needed).

Wall Recorder (may need several; record decisions on wall charts).

Equipment facilitator (will make sure all equipment is properly working).

Decision-Making Process:
Identify how group and management decisions will be made.

Public Meeting Agenda

Group/Meeting Name:

Date: _____ Time: From: _____ to: _____

Location:

_____

_____

Purpose:

_____

_____

_____

Provide a signup sheet at the meeting.

WHAT	HOW	WHO	TIME

Noxious Weed Information Questionnaire

PROPERTY NAME _____
OWNER _____ MANAGER _____
ADDRESS _____
TOWN _____ STATE _____ ZIP _____
PHONE NO. _____ DATE _____
COUNTY _____
LAND LOCATION _____
WATERSHED _____

1. Total Acres In Unit _____

ACRES OWNED	LAND TYPE	ACRES LEASED
_____	Cropland	_____
_____	Rangeland	_____
_____	Right-of-way	_____
_____	State	_____
_____	Other	_____

Please answer the following questions as completely as possible. This questionnaire useful when it also reveals what we <u>DON'T KNOW</u> about the Weed Management Area. An accurate picture of the WMA is a valuable tool towards ultimate weed management success.

2. Predominant Weed Species in this unit? Place a check by the species located on your lands.

ACRES/WEED SPECIES	ACRES/WEED SPECIES
____ Canada thistle	____ Common crupina
____ Dalmatian toadflax	____ Dyer's woad
____ Diffuse knapweed	____ Field bindweed
____ Houndstongue	____ Leafy spurge
____ Musk thistle	____ Perennial sowthistle
____ Rush skeletonweed	____ Russian knapweed
____ Spotted knapweed	____ St. Johnswort
____ Tansy ragwort	____ Hoary cress (Whitetop)
____ Yellow starthistle	____ Yellow toadflax
____ _____	____ _____
____ _____	____ _____
____ _____	____ _____
____ _____	____ _____
____ _____	____ _____

3. Are the weeds currently mapped?
Yes _____ No _____ Don't Know _____

4. Is there an organized control program underway?
Yes _____ No _____ Don't Know _____

5. How many acres are currently treated?
   Acres _____ Don't Know _____

6. Identify current control methods utilized.
   Herbicide _____ Mechanical _____
   Biological _____ Mechanical _____
   Cultural _____ Reveg _____
   Biocontrol _____ Control Grazing _____

7. Specify the predominant herbicide application method used on your unit:
   (mark "yes" by all that apply)
   Don't Know _____ Self-applied:____ % Custom-applied: ____ %
   _____ rope-wick applicator _____ helicopter
   _____ hand sprayer _____ fixed wing
   _____ boom/broad jet sprayer _____ _____
   _____ _____ _____ _____

8. Do you have any established biological control insectory sites? _____

   List agents established. _____

9. Where do you feel the major source of your weeds come from?
   _____ Right-of-way _____ irrigation water
   _____ adjoining land _____ other
   _____ self induce _____ other
   Don't Know _____

10. Is the source being treated?
    Yes _____ No _____ Don't Know _____

11. Will the spread of these weed infestations threaten the value or productivity of other lands?
    Yes _____ No _____ Don't Know _____

12. Is your land currently being threaten by infestations from other lands?
    Yes _____ No _____ Don't Know _____

13. Are there sensitive areas in this unit adjacent to weed infested areas?
    (mark "yes" by all that apply)
    _____ Riparian habitat _____ Sensitive crops
    _____ Orchard _____ Recreational home
    _____ Residential area _____ Cultural site
    _____ Biocontrol site _____ _____
    _____ _____ _____ _____
    Don't Know _____

Report Form #1

Weed Management Area Status Report

(Annual Report)

Weed Management Area (WMA) _____ Date _____

Submitted by _____ Title _____

Address _____

Address _____

WMA Acreage

Private	_____
City	_____
County	_____
Right-of-way	_____
State (list)	_____
	_____
Federal (list)	_____
	_____
	_____
	_____
	_____
Other _____	_____
_____	_____
_____	_____
Total Acres in WMA	_____

WMA Organization Status:

1. WMA Organized Yes _____ No _____
   (See Section II, "Purpose and Organization of Weed Management Areas" for the five steps involved in organizing a WMA)

2. Management Plan Completed
   Yes _____ No _____ Date completed _____

3. Management Plan Approved by **all** WMA cooperators
   Yes _____ No _____ Date approved _____

WMA Objectives Status:

Please rate on a percentage basis the progress completed towards achieving the objectives for your WMA as detailed in your WMA Management Plan. A **100%** rating indicates a successfully completed objective.

	WMA Objective	**Funds Expended in Current Year**	**Percent Completed**	**Funding Required**
1.	WMA Inventory Status *(see Section V)*	_____	_____	$ _____
2.	WMA Awareness, Education, Training *(see Section III)*	_____	_____	$ _____
3.	WMA Prevention and Early Detection *(see Section IV)*	_____	_____	$ _____
4.	WMA Acres Treated/Under Management *(see Section VI)*	_____	_____	$ _____
5.	WMA Monitoring & Evaluation *(see Section VIII)*	_____	_____	$ _____
6.	WMA Administration	_____	_____	$ _____

Total funding required to fully implement **all** objectives of WMA Management Plan $ _____

Report Form # 2

Noxious Weed Management by Species, Method, and Cost

(Annual Report)

Weed Management Area (WMA) _____ Date _____

Submitted by _____ Title _____

Address _____

Address _____

WEED SPECIES	Management by Method, Acres, and Cost								TOTAL ACRES	TOTAL COST
	Biological		Cultural (including revegetation)		Mechanical		Chemical			
	Acres	Cost	Acres	Cost	Acres	Cost	Acres	Cost		
Totals										

Report Form #3

Noxious Weed Infested Acres by Density Level by Ownership

(Update at 3-year Intervals)

Weed Management Area (WMA) _____ Date _____

Submitted by _____ Title _____

Address _____

Address _____

Refer to Section IV, Part III, and your inventory maps to complete this form

Weed Species	Infested acres by density level by owership												Total acres by ownership			Total acres
	Trace (<1% cover)			Low (1-5% cover)			Moderate (5-25% cover)			High (> 25% cover)						
	Federal	Pvt.	Other	Federal	Pvt.	Other	Federal	Pvt.	Other	Federal	Pvt.	Other	Federal	Pvt.	Other	
Total By Ownership																

Appendix 8

Monitoring Techniques

This appendix provides guidelines for three types of noxious weed management monitoring:

I. Permanent Photo Points
II. Vegetation Monitoring with Permanent Transects
III. Insect Biological Control Agents

Additional information on the monitoring techniques described in this appendix is available from university and government specialists. The information provided here provides a useful beginning point for developing successful weed management monitoring plans and programs.

I. Guidelines for Developing Permanent Photo Points

Permanent photo points are an easy and effective method to evaluate management actions and determine the progress of a weed control program. Comparing photographs of the same site taken over a period of years furnishes visual evidence of vegetation changes. Photo points should be established before initiating a control program in an area to ensure that there is a record of the resource situation prior to changes in management. Photographs, both close-up and general view, should be obtained at each evaluation site. IT IS VERY IMPORTANT TO ACCURATELY IDENTIFY EACH PHOTOGRAPH.

A. Equipment:
   1. Stakes (metal or fiberglass rod).
   2. Plot frame (3 X 3 or 5 X 5 foot metal or fiberglass frame).
   3. Photo identification label (see attached).
   4. 35 mm camera (ideally with a 28 mm wide-angle lens).
   5. Color slide film.
   6. Post (for marking location of the site) (metal or fiberglass).
   7. Post driver.
   8. Orange spray paint (for marking post).
   9. Compass or GPS unit.

B. Site Selection:

At least one permanent photo point should be located in each KEY area. Key areas are “critical” sites within the project area where the proposed management should have a significant impact. The number of key areas needed in a WMA will be influenced by soils, vegetation, topography, etc., and number of acres involved in the

project. Key areas may be selected on the basis of environmental, social, and/or political criteria.

C. Procedures:
   1. Mark the key area with a permanent “transect location” post (spray post with orange paint). Locate a typical area about 25 feet from the “transect location post”. Record the exact distance, compass heading and mark the plot with a stake. This will be the permanent “close up” photo print.
   2. Number the site on the photo identification label. (See Attachment 1 at the end of *Appendix* 8.) Lo cate the identification label in the center of the plot. Focus on the identification label when taking the photographs.
   3. Timing: Photographs should be taken when the weed is most visible (flowering) and at the same time each year.
   4. Close-up Photographs: Place the square frame next to the stake. Place the photo identification label flat on the ground. The camera point, or location from which the photograph is taken, should be on the north side of the photo plot so there are no shadows across the photo. To take the photograph, stand over the photo plot with toes touching the edge of the frame. Include the photo label in the photograph.
   5. General View Photographs: General view photographs present a broad view of a study site. The photo identification label is placed in an upright position so that it will appear in the foreground of the photograph. To take general view photographs, stand at the “transect location post”, include the photo label, a general view of the site, and some sky in the photographs.
   6. Repeat Photographs: Photographs should be taken at the same time each year using the above procedures. BE SURE TO USE THE SAME 35 MM CAMERA, COLOR SLIDE FILM, AND FACE THE SAME DIRECTION EACH YEAR WHEN TAKING REPEAT PHOTOS.

D. Narrative: A narrative must accompany each photograph so the results can be interpreted. A sample narrative is attached for reference. The first 10 questions should be completed the first year. In subsequent years, questions 1, 3, 6, 7, 8, 11, and 12 should be completed. (Attachment B at the end of Appendix 8.)

E. Map: A map that shows the location of all project area photo points should be kept on file. It may be helpful to mark the site with a GPS unit.

II. Vegetation Monitoring with a Permanent Transect

Specific procedures for establishing transects and collecting the data can be found in individual Federal Agency Handbooks.

Permanent transects are an effective and accurate method to evaluate management actions and determine the progress of weed treatment projects. The purpose of a permanent transects is to monitor the treatment on the weed species and show over time the changes in vegetation. Use this method to establish long-term monitoring information.

Work with WMA federal and state agency cooperators to design a site specific monitoring program if this level of information is needed.

A. General Features

The location of permanent plots must be accurately marked on aerial photos and resource management maps. The location and number of permanent plots installed should be carefully considered. The purpose of a permanent plot is to monitor the treatment on the weed species and show, over time, the effectiveness of the method. Use this method only if you have the WMA objectives establish long-term monitoring. Select those sites where the proposed management should have a significant impact and represents the project area. These should be established before initiating a treatment program in an area to ensure that there is a record of the resource situation prior to changes in management. These will be used on tours to explain the before and after situation and for evaluating program effectiveness.

Complete a detailed, large scale, permanent plot description map for each plot with notes on:

1. Location of the general area of the plot.
2. How to locate the transects.
3. A photo of the transects which includes reference background features.
4. Compass bearing of the transects and bearing to a reference point and distance or GPS location.
5. Bearing of the transects from the photo stake.
6. Location of stakes on the transects.

Appendix 8

III. Insect Biological Control Agent Monitoring

Make sure all release sites are permanently marked with a metal or fiberglass stake and accurately mapped. If possible use GPS unit and enter into weed database or mapping database.

A. Evaluate release sites by answering the following questions:
   1. Did the agent becomes established?
   2. Are its numbers increasing or declining?
   3. Is the population of the target weed increasing or declining?
   4. Have biological control agent predators moved into the area (such as ants, etc.).

B. Sample the site.
   1. Determine how the populations of the biocontrol agent and the target pest change.
   2. Observe the amount and type of damage actually inflicted on the target host.
   3. The best method of sampling depends on:
      a. How the agent utilizes its host.
      b. The density of the agent at the time of sampling.
      c. The life cycle of both agent and host.
      d. The desired accuracy of the data to be obtained.
      e. The amount of effort, labor and money which can be expended on taking the samples.

C. Monitoring can be conducted in three ways:
   1. Actively sampling the study area.
   2. Attracting desired specimens to a trap.
   3. Using a passive trap which collects whatever comes by.

D. Active Sampling.
   1. Observation — The simplest, although also the least statistically reliable method of sampling, observation provides limited amounts of information. From this method you can learn:
      a. that both the target organism and the agent are present.
      b. what the agent is doing during the time that it is being observed.
      c. the type and amount of damage inflicted on the host.
      d. how this damage has physically affected the host.
   2. Daubenmyer/Ring Samples — When specific areas are to be sampled with exact results needed, squares, rectangles or rings of known area can be used. Daubenmyer plant sampling frames of specific size can be placed on the ground and all plant material within counted, measured, identified, clipped, sorted and/or weighed to determine the plant composition, canopy cover and biomass of the area.

Appendix 8

3. Sweep Net Sampling — Similar to observations, sweep net sampling is conducted when the agent is attracted to, or is in the vicinity of, the host. With weed agents, this period is generally restricted to intervals when the agent is feeding or when the adult bioagent is laying eggs.
4. Dissections — When bioagents attack within the host, plant host material can be collected and dissected. This provides information on:
   a. the infestation rate of the host population.
   b. the number of agents per given host.
   c. stage of development of both agent and host.
   d. species composition of agents when numerous agents are involved.
   e. location within the host where the agent resides.
   f. the amount damage being inflicted by the agents.
5. Before and After Photographs — This is one of the simplest methods for recording results when working with biocontrol agents of weeds. This method does not provide information on density of the target host, etc., but does display the end results.
6. For more specific sampling methods, contact USDA-ARS, USDA-APHIS, state or federal agency biological control coordinators.

Attachment A

NOXIOUS WEED PHOTOPOINT

Photopoint No. _____

Location: _____

Photographer: _____

Date: _____

Time of Day: _____

Weed Species: _____

Establishment Date: _____

Notes: _____

_____

_____

Attachment B

PHOTOGRAPH NARRATIVE

1. Photograph Identification Number _____

2. Date of photograph _____

3. Grazing use (estimate utilization)
   <33%
   33-66%
   >66%

4. Soil surface texture
   sandy
   loamy
   clay
   other

5. Soil organic matter (optional) — %
   A soil sample can be sent to the soil testing lab to determine organic matter if desired.

6. Herbicide application _____

   Rate (gal./acre) _____

   Surfactant: yes _____ no _____

   Type of applicator: aerial _____ handgun _____
   boom _____ backpack _____

   Applicator: _____ county _____ federal agency
   _____ state agency _____ commercial
   _____ private (landowner)

7. Biological Control Releases

   Agent name: _____

   Target Weed species: _____

   Date of release: _____

   Number of agents released: _____

8. Other Control Methods

Explain: (be specific on technique, date, repeat treatments:

_____

_____

9. Stage of growth of most important weeds at application
(list weed species)

	_____	_____	_____	_____
rosette (or shoot)	_____	_____	_____	_____
early bolt	_____	_____	_____	_____
pre bloom	_____	_____	_____	_____
flowering	_____	_____	_____	_____
post bloom	_____	_____	_____	_____
fall re-growth	_____	_____	_____	_____

10. Degree of infestation (what percent of total vegetation on the site is weed species)
(list weed species)

	_____	_____	_____	_____
<1%	_____	_____	_____	_____
1-5%	_____	_____	_____	_____
5-25%	_____	_____	_____	_____
>25%	_____	_____	_____	_____

11. Size of infestation (treated acres). _____

12. This is a key area because:

_____

_____

13. Percent weed control. (list weed species)

	_____	_____	_____	_____
<10%	_____	_____	_____	_____
10-30%	_____	_____	_____	_____
30-60%	_____	_____	_____	_____
60-90%	_____	_____	_____	_____
>90%	_____	_____	_____	_____

14. Describe follow-up management (i.e. spot treatments,
grazing management, etc.)

_____

_____

_____

_____

Appendix 9

Noxious Weed Data Bases

Various offices and groups have developed noxious weed data bases. Listed below are some of the weed data bases and a brief description on what they were developed for:

Montana Weed Surveying and Mapping Data Base

The primary objective of weed surveying and mapping is to accurately identify and delineate land with populations of unwanted plants. These surveys are conducted so scientists and managers can predict those areas that are potentially subject to weed invasion; understand the biology of the invasion process and determine means by which weeds spread; develop, implement and evaluate weed management plans; assess the economic impact of weed invasion, and increase public awareness, education and weed management efforts.

The specific objective of the Montana Noxious Weed Survey and Mapping System are:

- to determine and record locations of noxious weeds
- to accurately calculate the total numbers of acres infested for each weed inventoried
- to determine how fast noxious weeds are spreading by comparing weed inventories from year to year.

This data base was developed by Diana Cooksey and Elizabeth Roberts at Montana State University, Bozeman, Montana 59717 Telephone: (406) 994-5684. MSU requested that the Bureau of Land Management, Montana State Office, Geographic Information System Group assume the maintenance of this mapping program, developed as an ArcView mapping application.

Contact: Donna Degner (406) 896-5136, or Rick Dickman (406) 896-5157, BLM, MSO, P.O. Box 36800, Billings, MT 59107-6800
email: ddegner@mt.blm.gov and rdickman@mt.blm.gov

Montana BLM Noxious Weed Treatment Data Base

This data base was designed to track infestation areas, and treatments of those infestation areas. Treatments within this data base can be biological, chemical, domestic animal or

mechanical or a combination of these treatments. This weed data base also stores information necessary for generation of yearly reports, and other reports as requested. The basic data base was developed by Mitch Forsyth of Havre Field Station and then modified and updated by the BLM Montana State Office. This application is written for the Unix platform using Informix as the database.

Contact: Donna Degner (406) 896-5136, or Rick Dickman (406) 896-5157, BLM, MSO, P.O. Box 36800, Billings, MT 59107-6800
email: ddegner@mt.blm.gov and rdickman@mt.blm.gov

Idaho/Oregon Noxious Weed Treatment Data Base

This data base is basically the same as the Montana BLM Noxious Weed Treatment Data Base. However this one was developed by the BLM Boise, Idaho Field Office, BLM Vale, Oregon District Office and their cooperators with the basic database design by Danielle Bruno, Idaho Department of Agriculture, P.O. Box 790, Boise, ID 83701
Telephone: (208) 332-8529; Fax #: (208) 334-4062
e-mail: dbruno@agri.st.id.us

These last two data bases are designed to:

1. Track infestation areas over time.
2. Track treatments of infestation areas over time.
3. Treatments within this data base can be biological, chemical, domestic animal or mechanical in nature or a combination of these treatments.
4. Generate yearly reports and other reports as requested.
5. Link to mapping data stored in a Geographic Information System through a site identification field.

This application is written to run in MS Access on Microsoft 95/98 or NT platforms.

The three above data bases are developed so that they can be combined or worked together.

Appendix 9

Southwest Exotic Plant Mapping Program Data Base

This data base was a cooperative effort among many federal, state and private individuals to develop a mapping data base. The USGS-BRD has the lead on this program called SWEMP, www.usgs.nau.edu/swemp

Contact: Dr. Kathryn Thomas, project director, telephone (520) 556-7466 extension 235 or James Gregory, project assistant, extension 225, USGS, BRD, Colorado Plateau Field Station, NAU, P.O. Box 5614, Flagstaff, AZ 86011-5614

Appendix 10

Site Assessment Worksheet

I. Directions for filling out the Site Information Worksheet

WMA - Name given to this specific management area

Site description - Use the established method of description (range and township, longitude and latitude, references to symbols on a map, etc.)

Target weed - Use both the common and scientific names

Land use - General use of land included in treatment site (Range-land, non-crop, right-of-way, etc.)

Infested acres - Use the same reporting method for the entire program and record the method used.

1. Total acres inspected while surveying, regardless of the number of number of weeds found per acre, or
2. Total number of acres within the management area that contain at least one target weed, or
3. Total amount of land physically inhabited by target weeds

II. Options

A. Control Method - Indicate control method(s) (chemical, biological, physical, cultural) used for each option.

B. Control Agent.
   1. Herbicide - List the common or trade name.
   2. Biological - List the common or scientific name
   3. Physical/Mechanical - List equipment or manpower to be used.
   4. Cultural - List technique(s) used.

C. Rate per site
   1. Herbicide - List the amount of active ingredient(s) and total number of units in accordance with label directions.
   2. Biological - List the number of insects, pathogens, or head of livestock which will be released per site .
   3. Physical/Mechanical - List number of man-hours or equipment-hours per site or per acre.
   4. Cultural - List number of man-hours or equipment hours per site or acre.

D. Number of acres or releases - Estimated (or actual) number of infested acres treated at this site or number of biological releases to be made at this site.

E. Agent cost per unit - Estimated (or actual) cost of control agent per unit (gallon, pound, carton, etc.).

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F. Agent cost per site - Multiply the number of estimated releases or infested acres treated in this site by the cost per unit.

G. Method of distribution or application - Method in which the control agent will be dispersed or applied (if applicable).
   1. Herbicide - List type of application equipment to be used.
   2. Biological - List release method and/or methods for redistribution.

H. Labor required per site or unit - Number of hours of labor required per site or acre for distribution or application (do not include administration time).

I. Labor cost per release or unit - Cost of labor per hour (include only the direct cost of application or distribution, not administrative costs).

J. Total labor cost - Multiply the estimated number of releases or infested acres treated by the labor cost per release or acre.

K. Administrative cost per site - Total administrative costs of using this option.

L. Total cost per site - Add agent cost per site, labor cost per site, and administrative cost per site.

M. Effect on non-target species - Include if there is a potential adverse effect on non-target species with the use of this option.

N. Expected percent of control first, second, third, fifth, and tenth year - Use information from chemical companies, university studies, government studies, etc.

WMA Site Assessment Worksheet

Weed Management Area (WMA) _____ Date _____

Completed by _____

Site # _____ Page # _____ of _____ Pages

Site Description					
Target Weed					
Land Use					
Infested Acres					
	Option #1	Option #2	Option #3	Option #4	Option #5
Control Method					
Control Agent					
Rate (Units/Acres or Site)					
# of Acres or Releases					
Agent Cost/Unit					
Agent Cost/Site					
Method of Distribution or Application					
Labor Required/Site-Acre					
Labor Cost/Release-Unit					
Total Labor Cost					
Administrative Cost/Site					
Total Treatment Cost					
Effect on Non-Target Species					
Exp % Control - 1st Year					
Exp % Control - 2nd Year					
Exp % Control - 5th Year					
Exp % Control - 10th Year					

Appendix 11

Guidelines for a Management Plan (MP) and an Annual Operating Plan (AOP)

The following prototypes are examples of actual Management Plans and Annual Operating Plans used by the agencies listed under each plan.

Note: Any page or appendix references in the following ex amples are to pages or appendices within the samples and do not relate to other portions of the Guidelines for Coordinated Management of Noxious Weeds manual.

Remember that in actual weed management situations not all the elements addressed in Section VI, “Management Plan/Annual Operating Plan” will necessarily be addressed in any one plan. Thus, the following prototypes serve only as examples as how completed plans will look in the specific situations described for each plan.

Your WMA objectives should answer the needs of your individual WMA and may not need to address all aspects of noxious weed management listed in the examples. The need for and prioritization of the following objectives will vary between WMAs. It is important to consider each of these core objectives. Success is greatest when an integrated plan is developed and implemented.

- Develop and maintain an inventory.
- Develop and maintain funding and administration.
- Develop awareness, education, and training programs.
- Develop prevention and early detection programs.
- Develop long-term management objectives for weeds of concern, according to the WMA prioritization.
- Develop and maintain monitoring and evaluation.
- Develop and maintain a reporting system.

Appendix 11

I. Prototype Management Plan (MP)

Clarksfork Weed Management Area (CFWMA) Management Plan (MP)

A. Define/Describe the WMA

The CFWMA includes all the land within the drainage area of the Clarksfork of the Yellowstone River, from the headwaters to its emergence from the Clarksfork Canyon near Clark, Wyoming.

Included in the CFWMA are lands within the legal boundaries of the Wyoming county of Park and the Montana counties of Park and Carbon. Legal jurisdiction of public lands include the U.S. Forest Districts of Clarksfork and Gallatin, the Absaroka-Beartooth Wilderness, and the Wyoming Game and Fish Department. Private lands include ranches, tourist facilities, seasonal cabins, subdivisions, incorporated townsites, and private game sanctuaries.

Recreation is the major use of the lands within the CFWMA. Activities include sight-seeing, big game hunting, camping, snowmobiling, back country hiking, and fishing. Agricultural uses include ranching, hay production, and livestock grazing of both sheep and cattle. Commercial uses include tourism, lumber production, and commerce.

The topography consists of mountains and intermountain valleys. The elevation varies from 12,799 feet at Granite Peak to less than 5,000 feet at the mouth of the Clarksfork Canyon. All species of North American wildlife are found in the area. Some of the lower areas serve as a wintering and calving range for the Yellowstone elk herds. Mule deer, moose, and big horn sheep can also be found in the area included in the CFWMA. An abundance of high mountain lakes and streams support many species of fish including arctic grayling and brook, cutthroat, rainbow, brown, lake, and golden trout.

Vegetation is typical to that found in high mountain meadows, and the forests include a variety of pine trees and aspen. Cultivated lands are usually planted to a mixture of grasses and legumes which are either grazed or harvested for livestock and wildlife feed. Irrigation is limited to flood irrigation from water diverted from either streams or rivers.

The CFWMA is heavily impacted during the summer months by tourists entering or leaving Yellowstone National Park

(YNP) by the Northeast entrance. The town of Cooke City provides commerce for the tourists and residents of the area. Both the Beartooth and the Chief Joseph highways are designated as scenic highways and are recommended tour routes by many private and public information agencies. Small subdivisions have been established on several parcels of private land, and seasonal cabins and houses are found on both private and special use public lands.

B. Define Purpose of WMA Management Plan.

This management plan is established to comply with the concept of a master plan for noxious weed control in the Greater Yellowstone Area (GYA). It is intended to concentrate available resources and capital on the noxious weed problem regardless of political boundaries. Through the cooperation of all agencies and individuals involved, it is the objective of this plan to prevent, contain, reduce, and hopefully eradicate noxious weeds in the Clarksfork Weed Management Area (CFWMA).

C. Define WMA Objectives

1. Objective #1: Develop and maintain an inventory.

Mapping and documenting noxious weed infestations will be executed in the manner described in Section V, "Inventory." (Additional guidelines will be obtained from Noxious Weed Management Planning Guidelines Workbook available from by Ag West Communications, Ft. Collins, CO) The agencies involved will be responsible for furnishing the required topography maps for the lands under their jurisdiction. The maps will be updated on a regular basis, with newly reported infestations and previously treated areas clearly indicated. All agencies will offer input into the location and identification of infestations and the Clarksfork Ranger District shall be responsible for updating and maintaining the maps.

2. Objective #2: Develop awareness, education, and training.

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Concern for the control of noxious weed in the CFWMA has been expressed from several different interest groups. Livestock producers find that weed compete with the more nutritious and palatable plants used by grazing animals. In addition, the movement of weeds onto lands not previously infested is a real concern. Hunters and other people interested in the recreation opportunities found in the CFWMA are concerned about the loss of habitat and feed for wildlife. Because most weeds have no or few natural enemies, they have the potential of rapidly multiplying and disrupting the present ecosystem.

3. Objective #3: Gravel pits.

   Two gravel pits within the CFWMA have been identified as having infestations of specific noxious weeds not known to existed anywhere else in the area. Musk thistle was first identified at the temporary gravel storage area at the base of Dead Indian Pass in 1979 and spotted knapweed was known be present in the Pilot Creek gravel pit as early as 1977.

4. Objective #4: Trailheads.

   Another source of infestation is near trailheads where horses and other livestock are unloaded from vehicles, held in confinement for a period of time, and fed unprocessed feeds, such as hay. Other infestations have been reported along heavily used trails of both livestock and wildlife. Both the disturbance of soil and the introduction of noxious weeds through animal waste cause an increase in noxious weed infestations.

5. Objective #5: Spotted knapweed.

   Because of its potential to spread, spotted knapweed is the weed of major concern. There is a vast seed source of this weed in areas adjacent to the CFWMA which is introduced into the management area by vehicles and man. Failure to control just one infestation within the management area will produce a seed source which will cause an increase in the total number of infested acres in the CFWMA.

6. Objective #6: Ox-eye daisy and Dalmatian toadflax.

   Ox-eye daisy and Dalmatian toadflax are easily disseminated by tourists and residents picking the flowers for their aesthetic value. Ox-eye daisy is found west of the CFWMA and Dalmatian toadflax is a major weed problem in the Mammoth area of YNP.

7. Objective #7 Canada Thistle.

   The most abundant weed found in the CFWMA is Canada thistle. However, it has become so established that eradication is no longer a viable option and only containment and reduction should be considered with available methods.

D. Define WMA Weeds of Concern.

Noxious weeds have been introduced into the CFWMA from a variety of sources. The most obvious infestations seem to have started along the highway rights-of-way. This is supported by visual observations of noxious weeds such as ox-eye daisy and spotted knapweed being found along the Beartooth and Chief Joseph Scenic Highways and nowhere else in the CFWMA.

Many other infestations have been identified in areas that have been disturbed by man. Areas where timber sales have occurred are often heavily infested with noxious weeds. The combination of removing the native vegetation for the building of roads, reducing soil compaction by disturbing the soil, and the introduction of noxious weed seeds from contaminated equipment, all enhance the introduction, increase, and spread of noxious weeds.

Noxious weeds known to exist in the CFWMA include:

Canada thistle *(Cirsium arvense)*
Common burdock *(Arctium minus)*
Dalmatian toadflax *(Linaria dalmatica)*
Field bindweed *(Convolvus arvensis)*
Hoary cress *(Cardaria draba)*
Houndstongue *(Cynoglossum officinale)*

Musk thistle *(Carduus nutans)*
Ox-eye daisy *(Chrysanthemum leucanthemum)*
Perennial sowthistle *(Sonchus arvensis)*
Spotted knapweed *(Centaurea maculosa)*
Yellow toadflax *(Linaria vulgaris)*

E. Define WMA Policy

1. Commitment to use Integrated Weed Management:

A complete integrated weed management (IWM) system shall be implement in accordance with the guidelines in Section VII. Each infestation will be evaluated based on location, species of weed, non-target vegetation intended land use, and topography. The actual control method to be used on each infestation will be stated in the yearly action plan. Pesticide application will be in accordance with label instructions and all safety precautions specified in the material safety data sheets (MSDS) shall be followed. A comprehensive safety plan shall be established and followed.

2. Establish adherence to management of noxious weeds in accordance with GYA priorities:

Priorities will be based on two considerations. The first consideration will be the specific weed and its potential of spreading into areas not previously infested. Weeds which have not been previously detected or are found in small, isolated spots within the CFWMA will receive first priority. Attempts will be made to eradicate the new infestation and to determine the source. If possible, control measures will be implemented to prevent re-infestation.

The second basis for priority of weed control practices will be the location of the infestation in relationship to topography and usage by man and livestock. Infestations at the head of water sheds, along trails of high seasonal use, and areas of intense grazing are the types of areas which shall receive first consideration when initiating a plan of work.

Appendix 11

II. Prototype Annual Operating Plan (AOP)

CLARKSFORK WEED MANAGEMENT AREA (CFWMA) Annual Operating Plan (AOP)

A. Define Roles and Responsibilities.

1. Agencies directly involved with the CFWMA by providing funding, resources, or expertise include:

Park County Weed and Pest Control District, Powell, WY
Park County Weed District, Livingston, MT
Carbon County Weed District, Joliet, MT
Wyoming Department of Agriculture, Cheyenne, WY
Montana Agriculture Department, Helena, MT
Shoshone National Forest, Clarksfork Dist., Powell, WY
Gallatin National Forest, Gardiner Dist., Gardiner, MT
Wyoming Game and Fish Department, Cheyenne, WY
University of Wyoming, Laramie, WY
Montana State university, Bozeman, MT

2. Define signatures required.

(Title), Park County Weed and Pest Control District	(Title), Shoshone Nat'l Forest Clarksfork Ranger District
(Title), Park County Weed Control District	(Title), Gallatin Nat'l Forest Gardiner Ranger District
(Title), Carbon County Weed Control District	(Title), Wyoming Department of Agriculture
(Title), Wyoming Game and Fish Department	(Title), Montana Department of Agriculture
(Title), University of Wyoming	(Title), Montana State University

3. Define terms and time of termination.

This management plan shall remain in affect until terminated by mutual consent of the agencies involved.

Agencies that have been consulted and will be included in long range planning include:

Yellowstone National Park, Mammoth, YNP
Custer National Forest, Beartooth District, Red Lodge, MT

Montana Department of Transportation
Wyoming Highway Department, Cody Maintenance Area, Cody, WY
Greater Yellowstone Area Coordinating Committee, Billings, MT
Townsite of Cooke City, Cooke City, MT
Wyoming Highway Patrol, Cheyenne, WY
Montana Highway Patrol, Helena, MT
Wyoming State Extension Service, Laramie and Cody, WY
Montana State Extension Service, Bozeman and Livingston, MT

B. Define Annual Funding and Resource Availability.

The following agencies agree to provide:

1. Park County Weed and Pest Control Dist. (PCWPCD), Powell, WY.
   a. The cost of all herbicides used in the chemical treatment of spotted knapweed.
   b. The administration to implement, coordinate, and carry out the CFWMA management plan.
   c. Application equipment (under contract to PCWPCD) for the chemical treatment of noxious weeds in the CFWMA. The first 20 hours will be without renumeration. The balance of the application time will be reimbursed at actual cost.

2. Park County Weed District, Livingston, MT.
   a. Use of their application equipment. The first 20 hours will be without renumeration. The balance of time will be reimbursed at actual cost.
   b. The cost of all herbicides used in treatment of Dalmatian toadflax.

3. Carbon County Weed District, Joliet, MT.
   a. Use of their application equipment. The first 20 hours will be without renumeration. The balance of time will be reimbursed at actual costs.
   b. The cost of all herbicides used in treatment of leafy spurge.

4. Wyoming Department of Agriculture, Cheyenne, WY.

   a. Printing, copying and mailing cost associated with the producing both the management plan and the action plan for the CFWMA.

5. Montana Agriculture Department, Helena, MT.
   a. The cost of creating, printing and distributing a brochure explaining the concept of a management plan for the CFWMA.

6. Shoshone National Forest, Clarksfork District, Powell, WY.
   a. $3500.00 toward the cost of herbicide control.
   b. $500.00 toward the cost of introduction of biological control into the CFWMA.

7. Gallatin National Forest, Gardiner District, Gardiner, MT.
   a. $2000.00 toward the cost of herbicide control.
   b. $500.00 toward the introduction of biological control into the CFWMA.

8. Wyoming Game and Fish Department, Cheyenne, WY.
   a. $500.00 toward the cost of herbicide control.
   b. $500./00 toward the introduction of biological control into the CFWMA.

9. University of Wyoming, Laramie, WY.
   a. One herbicide control research plot.

10. Montana State University, Bozeman, MT.
    a. One biological control research plot.

C. Define Proposed Actions To Meet Annual Objectives.
   1. Chemical treatment may include Tordon 22k, Banvel, Transline stinger, or 2,4-D. The selection of herbicide will be determined on-site by using the “Turn Around, Look Around” method of decision making recommended in the video film of the same name. All pesticides will be used within recommended label rates as suggested by the University of Wyoming’s Recommended Weed Control Guide.

Chemical control will continue with emphasis on new infestations or small areas of weeds. Retreatment will be conducted as needed and a variety of approved products will be used to prevent the chance of developing plant resistance.

2. Mechanical control practices will be limited to those areas where single plants or small patches of spotted knapweed are located. After chemical treatment, seed heads will be removed and carried to an area safe for burning. Removal of the entire plant or seed head will be conducted only if it is reasonable for the existing situation.

   Mechanical control will be used when seed head removal is a viable control method or non-target vegetation prevents the use of herbicides. Because labor in mechanical control is so costly, hand labor will only be used n areas of high priority and high sensitivity.

3. Preventive plans shall include the adoption of the recommended “Weed Free Certification Program”,: originated by the Wyoming Department of Agriculture. Specific plans shall be finalized through cooperation with the Forest Service, the Park County Weed and Pest Control District, the Park County Sheriff Department, and the Wyoming and Montana Highway Patrol. All livestock and wildlife feed introduced into the CFWMA shall meet the standards of the “Weed Free Certification Program.”

   Preventative methods will continue to be implemented whenever possible. The “Weed Free Certification Program” will continue to be enforced and cooperative agreements entered into with enforcement agencies. The Wyoming and Montana Extension Services will present education programs on a regular basis for the private and public sector within the CFWMA. The Park County Weed and Pest Control District will work with the Forest Service to educated both the temporary and permanent employees on noxious weed identification and survey methods.

4. Biological control will include the introduction of approved insects or pathogens on known areas of Canada thistle. The Montana State Extension Service shall supply the recommendations and the control agent introduction will be made by the Park County (MT) Extension Service.

   Biological control will be initiated and monitored throughout the CFWMA. Emphasis will be place on biological control agents that adversely affect Canada thistle and other weeds which are widespread and prevalent throughout the CFWMA. The University of Wyoming and Montana State University will be the lead agencies in biological control.

5. The first priority will be all trailheads and other disturbed sites with vehicle access. Chemical treatments will start at Colter Pass and continue west along the Beartooth Highway to Twin Lakes Scenic Vista near the summit of the Beartooth Range. Additional treatment will start at the junction of the Beartooth Highway and Chief Joseph Scenic Highway and continue over Dead Indian Pass to the Forest Service boundary and will include those areas associated with the Sunlight Creek Road. Treatment methods for this portion will consist of a truck mounted spray unit with hand held nozzles and two operators per unit.

6. The second priority will be areas such as subdivisions and seasonal cabins. The weed districts will be responsible for enforcing weed control on private land. The cost of treatment will be the responsibility of the landowner but the weed districts can use any cost share program they wish to help defray the expenses. Treatment methods will be left to the discretion of the landowner and the weed district supervisor.

7. The third priority will be along heavily used access trails. Specific trails will be identified by Forest Service personnel during the first months of the summer and incorporated into this plan. Method of treatment for this portion of the program will consist of backpacked or horse mounted units.

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D. Evaluate program effectiveness. Program coordinators will evaluate the effectiveness of each treatment method at the appropriate time of the year.

E. Develop and maintain an inventory.

If additional funds exist, the balance will be used to survey and map areas of suspected infestation. These areas will include wetlands, regions of intense livestock grazing, and areas of intensified concentration of wildlife. Mapping of these areas will conform with the recommendations in Section V.

F. Develop and maintain a reporting system.

A meeting of the involved agencies shall be held annually, during the first three months of the calendar year, to develop and modify the action plan. Such action plan shall be attached to management plan and shall be come an intricate part of this document.

Appendix 12

Guidelines for a Safety Plan

I. General Guidelines

All pesticide users must comply with 29 CAR 1910.1200, (OSHA's Hazard Communication Standard). A Material Safety Data Sheet (MSDS) should be obtained for each type of pesticide used. Pesticide applicators should receive training on how to read the MSDS and be briefed on the information relating to each particular pesticide they use. Refer to each MSDS for specific information regarding first aid, transportation, storage and handling, disposal, and emergency actions. All users must comply with their individual agency standards regarding safety plans.

II. First Aid

First aid involving chemical exposure should be incorporated into the WMA training and education courses. Personnel involved in all WMA projects should know the name, address, and telephone number of physicians and hospitals where treatment and information can be obtained. Post this information on any facilities where weed management activities occur.

A. First aid equipment should include a radio, an adequate first aid kit, a sprayer protection kit, a portable eye wash, and spill safety kit.

B. Emergency action steps necessary in the event of accidental poisoning:
   1. Move the individual away from the pesticide and remove contaminated clothing. Wash the pesticide off skin.
   2. If the individual is not breathing, or breathing is weak, initiate first aid (refer to label instructions).
   3. Notify a physician of the pesticide involved. Administer antidote <u>if advised</u> by physician. Keep patient warm, quiet, and calm.
   4. If appropriate, take the individual to the hospital. Have a copy of the pesticide label.

C. Poison Control Centers
   1. In the case of any suspected poisoning accident, call the nearest Poison Control Center at once.

The Rocky Mountain Poison Control Center number is 1-800-332-3073.

   2. Poison Control Centers also provide treatment for poisoning.

Appendix 12

D. General first aid procedures for various types of exposure:
   1. Pesticide on skin: Immediately remove contaminated clothing and wash the affected area thoroughly with soap and water.
   2. Pesticides taken orally: Read label and follow instructions. Consult physician immediately.
   3. Pesticides in the eyes: Hold the eye(s) open and flush with a gentle stream of water for 15 minutes.
   4. Pesticide burns: Remove contaminated clothing, wash skin with large amounts of water, and cover with loose cloth. Treat for shock (see below). Do not treat with ointment or greases.
   5. Pesticides inhaled: Move individual to fresh air, loosen clothing, and administer artificial respiration if breathing has stopped. Treat for shock (see below). If individual is in an enclosed space, do not enter the area without respiratory equipment.

E. Shock:

   Sometimes poisoning victims go into shock. If untreated or ignored the victim can die from shock even if the poisoning injuries would not be fatal.
   1. Shock symptoms.
      a. Skin is pale, moist, cold and clammy.
      b. The eyes are vacant and lackluster with dilated pupils.
      c. Breathing is shallow and irregular.
      d. Victim may be unconscious or faint.
   2. Treatment of Shock.
      a. Unless the individual is vomiting, keep the victim flat on their back with legs up 1- to 1-1/2 feet above their head.
      b. Keep victim warm enough to prevent shivering. Do not overheat.
      c. If the victim is conscious and has not swallowed any poison, give small amounts of water or a dilute salt solution (1/2 teaspoon table salt to 1 qt. of water). Give as often as the victim will accept it.
      d. Keep victim quiet and reassure often.
      e. Never try to give anything by mouth to an unconscious victim.

III. Transporting Pesticides

A. Carry pesticides in the secured cargo area of the vehicle, never in the passenger compartment.

B. Ensure that no container leaks develop, that no container is punctured or ruptured, that no lids or caps are loosened, and paper containers are kept dry.

C. Take special precautions while loading and stacking pesticide containers on a vehicle. Containers should be secured, so that none can fall or roll about due to vehicle movement.

D. Containers must never be transported while open. Partially used containers must be securely resealed prior to movement.

E. After transport, inspect all pesticide containers for damage and leaks. Examine the vehicle carefully for contamination.

F. Generally, trucks with wooden platforms should not be used since contamination will probably require replacement of the planking.

G. The vehicle should carry herbicides only - never a mixed load. Trucks used to transport herbicides must never be used to transport food, clothing, beverages, household goods, animal feeds, or similar commodities without prior decontamination.

IV. Storage and Handling

A. General Safety Guidelines.
Follow these guidelines to minimize spills and accidental contamination and allow better response in the case of fire.

1. Store all pesticides in a secure storage room which is kept locked at all times except when in use. Storage in the field during operations may require a full-time watchman.
2. Use locked storage on all vehicles used in pest control operations and transport of materials.
3. Label all materials in such a manner that the contents of all containers are plainly visible.
4. Keep chemicals separated by type to prevent cross-contamination.
5. Do not use obsolete or unsatisfactory materials and equipment.
6. Permit no smoking or eating in the storage area and post the area with signs to that effect.
7. Identify the pesticide storage area with prominent waterproof signs over each entrance (including windows) and on all sides of building. **Post a list of**

chemicals on the outside of building, along with storage plan.

8. Inform police, fire department, and medical officials in writing of the location and layout of the storage areas, types of materials stored, and hazards involved. Provide fire chief with telephone numbers of those personnel responsible for storage. Fire companies should map the locations of pesticide chemical storage in their respective areas. "Pesticide Fires: Prevention, Control and Cleanup" is available from AFPMB, Washington, D.C.
9. Inform the nearest physician and hospital of potential hazards, and ensure that medical personnel know how to treat for pesticide exposure. Ensure that the "Clinical Handbook on Economic Poisons" is available. Obtain copy from HHS, Communicable Disease Center, Office of Pesticides, Atlanta, Georgia 30333.
10. Obtain desirable fire fighting equipment (extinguishers) and have all employees familiarize themselves with its operation. Be sure the equipment works properly.
11. Keep pesticide containers, particularly glass, away from windows and sunlight so they will not be subject to heat and ignition.
12. Keep combustibles away from steam lines and heat. Read label for information on flammability and store accordingly.
13. Dispose of unlabelled pesticides. Treat them as highly toxic.
14. Keep a quantity of absorbent material on hand for detoxification.
15. In the event of container leakage, immediately make drop pans available until repackaging is completed.
16. Never use milk or beverage bottles, or any type of food containers, for storage of chemicals.
17. Clean up spilled chemicals immediately or contact your area hazardous materials specialist.

B. Handling of Pesticides.

It is extremely important to follow label requirements pertaining to the use of safety equipment and clothing. Each job should be assessed for hazard - there may be occasions when common sense requires additional precautions to be taken even though not required by law.

Appendix 12

Pesticide poisoning of applicators or those associated with the application usually occurs from absorption through the skin. To avoid pesticides from coming into contact with the skin, it is recommended that the following minimum requirements apply to **all** pesticide use, regardless of the hazard category (label specifications may require more stringent measures):

1. Coveralls - that cover the entire body from wrists to ankles should be worn at all times during handling, mixing, flagging, or application operations. Pant legs and sleeves should be worn outside of boots and gloves.
2. Gloves and Boots - should be made of unlined rubber or neoprene material. In some cases the label will specifically state which type of gloves and boots to be used. Check the gloves for leaks prior to use by filling with water and squeezing the glove. Boots should give support around the ankles to prevent injury when walking in rough terrain.
3. Goggle/Face Shield - Should be worn when pouring or mixing concentrates. Goggles should be non-fogging. Face shields should be made of clear plastic and be attached to the hat so they can be raised and lowered. Do not use goggles or a face shield with a headband that can absorb pesticide.
4. Hats - should be made of a liquid-proof, washable plastic with plastic sweatband. These hats should be worn during pesticide application, flagging, and mixing operations. Hats with leather sweatbands should not be worn.
5. Respiratory Device - The respirator must properly fit the face, so that air leakage does not occur. The user must be clean shaven. Use only equipment that is approved by the National Institute for Occupational Safety and Health or the Mining Enforcement and Safety Administration. The user must be instructed in its use.

C. The following additional guidelines should be followed when handling pesticides:
   1. Handle full barrels of chemicals with care to avoid personal injury - use barrel rolls if applicable.
   2. To minimize inhalation, handle all pesticides in well ventilated areas only.

3. Immediately wash **any** contamination off the skin with detergent and water. Frequent washing of the skin during and after pesticide application is as important as protective clothing.

IV. Container Disposal

Pesticide containers retain a small amount of pesticide even after being triple rinsed. Therefore, the disposal of all pesticide containers must comply with Federal, State, and local laws. County extension agents, county weed supervisors, or state regulatory officials are familiar with the local requirements.

A. Account for every used container and never allow unrestricted use by individuals
B. All liquid containers must be rinsed at least three times prior to disposal. The rinse water should be sprayed on to the treatment area.
C. Disposal of containers must be made in accordance to local and state regulations. Some landfills will not accept pesticide containers.

V. Emergency Action

It is extremely important that pesticide project plans include a carefully thought out course of action which addresses emergency situations. Without prior planning, unnecessary delays and additional damage or injury could occur as a result of a spill or fire. Everyone involved in the project should be aware of the procedures and their responsibilities for implementation.

VI. Pesticide Spills and Cleanup

Pesticide spills and cleanup require immediate action based on foresight and preparation. All reasonable precautions should be taken to avoid spilling pesticides, but accidents will occur. Accidents are most likely to happen when pesticides are being transported or in a storage area. A spill kit carried in vehicles and kept in pesticide storage areas will allow quick and effective response to spills.

Some important items in a typical spill kit include:

1. Protective clothing and gloves
2. Adsorptive clay or “kitty litter”
3. Plastic bags and bucket

4. Shovel
5. Fiber brush and screw-in handle
6. Dust pan
7. Highway flares
8. Detergent

Response to a pesticide spill may vary with size and location of the spill, but the following are usually appropriate:

1. Control traffic.
2. Dress clean-up team with protective clothing.
3. Stop leaks.
4. Contain spilled material.
5. Clean up and remove spilled pesticide and contaminated adsorptive material and soil.
6. Transport spilled pesticide and contaminated material to a DEQ authorized disposal site.

VII. Reporting Spills

Contact CHEMTREC, the Chemical Transportation Emergency Center, at its toll-free number:

1-800-424-9300

If federal agencies are one of the cooperator's, contact the nearest Hazardous Materials Specialist for assistance.

Appendix 13

Common and Scientific Plant Names and Codes

The following list of plants gives standardized codes for the Weed Science Society of America (WSSA-ID), Natural Resource Conservation Service (NRCS-ID), and the US Forest Service (USFS-ID).

These codes can be used in database programs adopted by the WMA. The NRCS Plants list is the preferred list to use. This list is alphabetical by scientific name. An alphabetical listing by common name follows this list.

Scientific Name						
Genus	Species/ Authority	Common Name	Bayer or WSSA ID	National Plants NRCS ID	Region 1 USFS ID	Plant Type *
Abutilon	*theophrasti*	velvetleaf	ABUTH	ABTH	ABUTHE	VF
Acalypha	*rhomboidea*	copperleaf, rhombic	ACCRH	ACRH	ACARHO	VF
Acalypha	*virginica*	copperleaf, Virginia	ACCVI	ACVI	ACAVIR	VF
Acer	*macrophyllum*	maple, bigleaf	ACRMA	ACMA3	ACEMAC	VT
Acer	*rubrum*	maple, red	ACRRB	ACRU	ACERUB	VT
Acer	*saccharum*	maple, sugar	ACRSC	ACSA3	ACESAC	VT
Achillea	*ptarmica*	sneezeweed	ACHPT	ACPT	ACHPTA	VF
Achillea	*millefolium*	yarrow, common	ACHLA	ACMIL3	ACHMIL	VF
Achillea	*millefolium*	yarrow, common	ACHMI	ACMI2	ACHMIL	VF
Achillea	*lanulosa*	yarrow, western	ACHLA	ACLA5	ACHMIL	VF
Acorus	*calamus*	sweetflag	ACSCA	ACCA4	ACOCAL	VF
Acroptilon	*repens*	knapweed, Russian	CENRE	ACRE3	CENREP	VF
Actaea	*spicata*	baneberry	AATSR	ACSPR3	ACTRUB	VF
Actaea	*rubra*	baneberry, red	AATSR	ACRU2	ACTRUB	VF
Adonis	*annua*	adonis, annual	ADOAN	ADAN	ADOANN	VF
Adonis	*annua*	adonis, pheasanteye	ADOAN	ADAN	ADOANN	VF
Aegilops	*triuncialis*	goatgrass, barb	AEGTR	AETR	AEGTRI	VG
Aegilops	*cylindrica*	goatgrass, jointed	AEGCY	AECY	AEGCYL	VG
Aegopodium	*podagraria*	goutweed, bishop's	AEOPO	AEPO	AEGPOD	VF
Ageratina	*adenophora*	thoroughwort, gland-bearing	EUPAD	AGAD2	AGEADE	VF
Agrimonia	*striata*	agrimony, roadside	AGIST	AGST	AGRSTR	VF
Agropyron	*repens*	quackgrass	AGRRE	AGRE2	AGRREP	VG
Agropyron	*pauciflorum*	wheatgrass	AGRTR	AGPA15	AGRPAU	VG
Agropyron	*trachycaulum*	wheatgrass, slender	AGRTR	AGTR	AGRCAN	VG
Agropyron	*elongatum*	wheatgrass, tall	AGREL	AGEL3	AGRELO	VG
Agrostemma	*githago*	cockle, corn	AGOGI	AGGI	AGRGIT	VF
Agrostis	*perennans*	bentgrass, autumn	AGSPE	AGPE	AGRPER	VG
Agrostis	*tenuis*	bentgrass, colonial	AGSTE	AGTE	AGRTEN	VG
Agrostis	*palustris*	bentgrass, creeping	AGSPL	AGPA17	AGRSTO	VG
Agrostis	*stolonifera*	bentgrass, creeping	AGSST	AGST2	AGRSTO	VG
Agrostis	*hyemalis*	bentgrass, winter	AGSHI	AGHY	AGRHYE	VG
Agrostis	*alba*	redtop	AGSGI	AGAL3	AGRSTO	VG
Agrostis	*gigantea*	redtop	AGSGI	AGGI2	AGRSTO	VG
Ailanthus	*altissima*	heaven, tree of	AILAL	AIAL	AILALT	VT
Aira	*caryophyllea*	hairgrass, silver	AIRCA	AICA	AIRCAR	VG
Ajuga	*reptans*	bugle, carpet	AIURE	AJRE	AJUREP	VF
Alcea	*rosea*	hollyhock	ALGRO	ALRO3	ALTROS	VF
Alchemilla	*vulgaris*	ladysmantle	ALCVU	ALVU2	ALCVUL	VF
Alchemilla	*xanthochlora*	ladysmantle	ALCVU	ALXA	ALCVUL	VF

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Appendix 13

Scientific Name				National		
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Alhagi	*camelorum*	camelthorn	ALHPS	ALCA	ALHCAM	VS
Alhagi	*pseudalhagi*	camelthorn	ALHPS	ALPS3	ALHPSE	VF
Alisma	*plantago-aquatica*	waterplantain, common	ALSPA	ALPL	ALIPLA	VF
Alisma	*triviale*	waterplantain, common	ALSPA	ALTR7	ALIPLA	VF
Alisma	*gramineum*	waterplantain, narrowleaf	ALSGR	ALGR	ALIGRA	VF
Alliaria	*petiolata*	mustard, garlic	ALAPE	ALPE4	ALLPET	VF
Alliaria	*officinalis*		ALAPE	ALOF3	ALLPET	VF
Allium	*canadense*	onion, wild	ALLCA	ALCA3	ALLCAN	VF
Allium	*columbianum*		ALCO2		ALLDOU	VF
Alnus	*rubra*	alder, red	ALURB	ALRU2	ALNRUB	VT
Alnus	*rugosa*	alder, speckled	ALURG	ALRU3	ALNINC	VS
Alopecurus	*carolinianus*	foxtail, Carolina	ALOCA	ALCA4	ALOCAR	VG
Alopecurus	*pratensis*	foxtail, meadow	ALOPR	ALPR3	ALOPRA	VG
Alopecurus	*geniculatus*	foxtail, water	ALOGE	ALGE2	ALOGEN	VG
Alopecurus	*myosuroides*	twitch, black	ALOMY	ALMY	ALOMYS	VG
Alternanthera	*sessilis*	copperleaf, dwarf	ALRSE	ALSE4	ALTSES	VF
Alternanthera	*pungens*	khakiweed	ALRRE	ALPU3	ALTPUN	VF
Alternanthera	*repens*	khakiweed	ALRRE	ALRE2	ALTREP	VF
Althaea	*rosea*	hollyhock	ALGRO	ALRO4	ALTROS	VF
Alyssum	*desertorum*	alyssum, dwarf	AYSDE	ALDE	ALYDES	VF
Alyssum	*alyssoides*	alyssum, yellow	AYSAL	ALAL3	ALYALY	VF
Amaranthus	*palmeri*	amaranth, Palmer	AMAPA	AMPA	AMAPAL	VF
Amaranthus	*powellii*	amaranth, Powell	AMAPO	AMPO2	AMAPOW	VF
Amaranthus	*arenicola*	amaranth, sandhills	AMAAR	AMAR	AMAARE	VF
Amaranthus	*blitoides*	pigweed, prostrate	AMABL	AMBL	AMAGRA	VF
Amaranthus	*graecizans*	pigweed, prostrate	AMABL	AMGR	AMAGRA	VF
Amaranthus	*retroflexus*	pigweed, redroot	AMARE	AMRE	AMARET	VF
Amaranthus	*hybridus*	pigweed, smooth	AMACH	AMHY	AMAHYB	VF
Amaranthus	*albus*	pigweed, tumble	AMAAL	AMAL	AMAALB	VF
Amaranthus	*rudis*	waterhemp, common	AMATA	AMRU	AMARUD	VF
Amaranthus	*tuberculatus*	waterhemp, tall	AMATU	AMTU	AMATUB	VF
Ambrosia	*acanthicarpa*	bursage, annual	FRSAC	AMAC2	AMBACA	VF
Ambrosia	*tomentosa*	bursage, skeletonleaf	FRSTO	AMTO3	AMBTOM	VF
Ambrosia	*artemisiifolia*	ragweed, common	AMBEL	AMAR2	AMBART	VF
Ambrosia	*trifida*	ragweed, giant	AMBTR	AMTR	AMBTRI	VF
Ambrosia	*coronopifolia*	ragweed, perennial	AMBPC	AMCO5	AMBPSI	VF
Ambrosia	*psilostachya*	ragweed, western	AMBPS	AMPS	AMBPSI	VF
Ambrosia	*grayi*		AMBGR	AMGR5	AMBGRA	VF
Ammannia	*coccinea*	ammannia, purple	AMMCO	AMCO	AMMCOC	VF
Ammannia	*auriculata*	redstem	AMMAU	AMAU2	AMMAUR	VF
Amorpha	*fruticosa*	indigobush	AMHFR	AMFR	AMOFRU	VS
Amorpha	*canescens*	leadplant	AMHCN	AMCA6	AMOCAN	VS
Amsinckia	*intermedia*	fiddleneck, coast	AMSIN	AMIN3	AMSINT	VF
Amsinckia	*lycopsoides*	fiddleneck, tarweed	AMSLY	AMLY	AMSLYC	VF
Amsinckia	*tessellata*	fiddleneck, western	AMSTE	AMTE3	AMSTES	VF
Amsinckia	*retrorsa*	tarweed, palouse	AMSRE	AMRE2	AMSRET	VF
Anacharis	*densa*	elodea, Brazillian	ELDDE		EGEDEN	VF
Anacharis	*canadensis*	waterweed, western	ELDCA		ELOCAN	VF

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Anagallis	*arvensis*	pimpernel, scarlet	ANGAR		ANAARV	VF
Anaphalis	*margaritacea*	everlasting, pearly	ANPMA	GNMA2	ANAMAR	VF
Anchusa	*officinalis*	bugloss, common	ANCOF		ANCOFF	VF
Anchusa	*azurea*	bugloss, Italian	ANCIT		ANCAZU	VF
Anchusa	*italica*	bugloss, Italian	ANCIT		ANCAZU	VF
Anchusa	*arvensis*	bugloss, small	LYCAR	LYAR	ANCARV	VF
Andropogon	*scoparius*	bluestem, little	ANOSC		ANDSCO	VG
Anethum	*graveolens*	dill	AFEGR		ANEGRA	VF
Anoda	*cristata*	anoda, spurred	ANVCR	SICR2	ANOCRI	VF
Antennaria	*neglecta*	pussytoes, field	ANXNE		ANTNEG	VF
Antennaria	*plantaginifolia*	pussytoes, plantainleaf	ANXPL	GNPL	ANTPAL	VF
Anthemis	*arvensis*	chamomile, corn	ANTAR		ANTARV	VF
Anthemis	*cotula*	chamomile, mayweed	ANTCO	MACO22	ANTCOT	VF
Anthemis	*tinctoria*	chamomile, yellow	ANTTI	COTI4	ANTTIN	VF
Anthoxanthum	*odoratum*	vernalgrass, sweet	AOXOD		ANTODO	VG
Anthriscus	*cerefolium*	chervil	ANRCE	CECE3	ANTCER	VF
Anthriscus	*sylvestris*	parsely, cow	ANRSY	CHSY	ANTSYL	VF
Anthriscus	*caucalis*		ANRCA		ANTCAU	VF
Anthriscus	*scandicina*		ANRCA		ANTCAU	VF
Apocynum	*cannabinum*	dogbane, hemp	APCCA	APCA	APOCAN	VF
Apocynum	*sibiricum*	dogbane, prairie	APCVE	APSI	APOSIB	VF
Apocynum	*androsaemifolium*	dogbane, spreading	APCAN	APAN2	APOAND	VF
Arabidopsis	*thaliana*	cress, mouseear	ARBTH	ARTH	ARATHA	VF
Arabis	*glabra*	mustard, tower	ARCGL	ARGL	ARAGLA	VF
Arctium	*minus*	burdock, common	ARFMI	ARMI2	ARCMIN	VF
Arctium	*lappa*	burdock, great	ARFLA	ARLA3	ARCLAP	VF
Arctium	*tomentosum*	burdock, woolly	ARFTO	ARTO	ARCTOM	VF
Arctoa	*starkei*	Stark	ARST12		KIASTA	KI
Arenaria	*lateriflora*	sandwort, grove	MGJLA	ARLA15	ARELAT	VF
Arenaria	*serpyllifolia*	sandwort, thymeleaf	ARISE	ARSE2	ARESER	VF
Argemone	*intermedia*	pricklepoppy, annual	ARGPL	ARIN7	ARGPOL	VF
Argemone	*polyanthemos*	pricklepoppy, annual	ARGPL	ARPO2	ARGPOL	VF
Aristida	*oligantha*	grass, Triple-awned	ARKOL	AROL	ARIOLI	VG
Aristida	*longiseta*	threeawn, red	ARKLS	ARLO3	ARILON	VG
Armoracia	*rusticana*	horseradish	ARRU4		ARMRUS	VF
Armoracia	*lapathifolia*		ARLA23		ARMRUS	VF
Arrhenatherum	*elatius*	oatgrass, tall	ARREL	AREL3	ARRELA	VG
Artemisia	*vulgaris*	mugwort	ARTVU	ARVU	ARTVUL	VF
Artemisia	*douglasiana*	mugwort, California	ARTDO	ARDO3	ARTDOU	VF
Artemisia	*tridentata*	sagebrush, big	ARTTR	ARTR2	ARTTRI	VS
Artemisia	*frigida*	sagebrush, fringed	ARTFR	ARFR4	ARTFRI	VS
Artemisia	*filifolia*	sagebrush, sand	ARTFI	ARFI2	ARTFIL	VS
Artemisia	*campestris*	sagewort, common	ARTCM	ARCA12	ARTCAM	VF
Artemisia	*campestris*	sagewort, field	ARTCC	ARCAC	ARTCAM	VF
Artemisia	*caudata*	sagewort, field	ARTCC	ARCA24	ARTCAM	VF
Artemisia	*dracunculus*	tarragon	ARTDR	ARDR4	ARTDRA	VF
Artemisia	*absinthium*	wormwood, absinth	ARTAB	ARAB3	ARTABS	VF
Artemisia	*annua*	wormwood, annual	ARTAN	ARAN3	ARTANN	VF

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Artemisia	*biennis*	wormwood, biennia	ARTBI	ARBI2	ARTBIE	VF
Artemisia	*ludoviciana*	wormwood, Louisiana	ARTLU	ARLU	ARTLUD	VF
Artemisia	*abrotanum*	wormwood, southern	ARTAT	ARAB2	ARTABR	VS
Asclepias	*labriformis*	labriform	ASCLA	ASLA	ASCLAB	VF
Asclepias	*tuberosa*	milkweed, butterfly	ASCTU	ASTU	ASCTUB	VF
Asclepias	*syriaca*	milkweed, common	ASCSY	ASSY	ASCSYR	VF
Asclepias	*verticillata*	milkweed, eastern whorled	ASCVE	ASVE	ASCVER	VF
Asclepias	*viridiflora*	milkweed, green	ASCVI	ASVI	ASCVIR	VF
Asclepias	*fascicularis*	milkweed, Mexican whorled	ASCFA	ASFA	ASCFAS	VF
Asclepias	*speciosa*	milkweed, showy	ASCSP	ASSP	ASCSPE	VF
Asclepias	*incarnata*	milkweed, swamp	ASCIN	ASIN	ASCINC	VF
Asclepias	*subverticillata*	milkweed, western whorled	ASCSU	ASSU2	ASCSUB	VF
Asperugo	*procumbens*	catchweed	ASGPR	ASPR	ASPPRO	VF
Asphodelus	*fistulosus*	onionweed	ASHFI	ASFI2	ASPFIS	VF
Aster	*lateriflorus*	aster, calico	ASTLF	ASLA6	ASTLAT	VF
Aster	*ericoides*	aster, heath	ASTER	ASER3	ASTERI	VF
Aster	*novae-angliae*	aster, New England	ASTNA	ASNO	ASTNOV	VF
Aster	*pilosus*	aster, white heath	ASTPI	ASPI2	ASTPIL	VF
Astragalus	*lentiginosus*	loco, spotted	ASALE	ASLE8	ASTLEN	VF
Astragalus	*miser*	milkvetch, Columbia	ASAMS	ASMIS	ASTMIS	VF
Astragalus	*miser*	milkvetch, timber	ASAMI	ASMI9	ASTMIS	VF
Astragalus	*bisulcatus*	milkvetch, twogrooved	ASABI	ASBI2	ASTBIS	VF
Astragalus	*miser*	milkvetch, Yellowstone	ASAMH	ASMIH	ASTMIS	VF
Astragalus	*robbinsii*	milkvetch, Robbins	ASROM		ASTROB	VF
Atriplex	*hortensis*	orach, garden	ATXHO	ATHO	ATRHOR	VF
Atriplex	*hastata*	orach, halberdleaf	ATXHA	ATHA	ATRPAT	VF
Atriplex	*patula*	orach, halberdleaf	ATXHA	ATPAH2	ATRPAT	VF
Atriplex	*rosea*	orach, red	ATXRO	ATRO	ATRROS	VF
Atriplex	*patula*	orach, spreading	ATXPA	ATPA4	ATRPAT	VF
Atriplex	*semibaccata*	saltbrush, Australian	ATXSE	ATSE	ATRSEM	VF
Atriplex	*canescens*	saltbush, fourwing	ATXCA	ATCA2	ATRCAN	VS
Atriplex	*argentea*	saltbush, silverscale	ATXAR	ATAR2	ATRARG	VF
Atriplex	*confertifolia*	shadscale	ATXCO	ATCO	ATRCON	VS
Avena	*sterilis*	oat, animated	AVEST	AVST	AVESTE	VG
Avena	*barbata*	oat, slender	AVEBA	AVBA	AVEBAR	VG
Avena	*fatua*	oat, wild	AVEFA	AVFA	AVEFAT	VG
Avena	*sativa*	oats	AVESA	AVSA	AVESAT	VG
Axyris	*amaranthoides*	pigweed, Russian	AXYAM	AXAM	AXYAMA	VF
Azolla	*pinnata*	waterfern, feathered	AZOPI	AZPI	AZOPIN	VE
Baccharis	*pilularis*	baccharis	BACPI	BAPI	BACPIL	VF
Bacopa	*rotundifolia*	waterhyssop, disc	BAORO	BARO	BACROT	VF
Barbarea	*vulgaris*	rocket, yellow	BARVU	BAVU	BARVUL	VF
Barbarea	*verna*	wintercress, early	BARVE	BAVE	BARVER	VF
Bassia	*hyssopifolia*	bassia, fivehook	BAFHY	BAHY	BASHYS	VF
Bellis	*perennis*	daisy, English	BELPE	BEPE2	BELPER	VF
Berberis	*vulgaris*	barberry, European	BEBVU	BEVU	BERVUL	VS
Berberis	*thunbergii*	barberry, Japanese	BEBTH	BETH	BERTHU	VS
Berteroa	*incana*	alyssum, hoary	BEFIN	BEIN2	BERINC	VF

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Bidens	*comosa*	beggarticks, bur	BIDTR	BICO3	BIDTRI	VF
Bidens	*tripartita*	beggarticks, bur	BIDTR	BITR	BIDTRI	VF
Bidens	*connata*	beggarticks, connate	BIDCN	BICO5	BIDTRI	VF
Bidens	*frondosa*	beggarticks, devils	BIDFR	BIFR	BIDFRO	VF
Bidens	*pilosa*	beggarticks, hairy	BIDPI	BIPI	BIDPIL	VF
Bidens	*cernua*	beggarticks, nodding	BIDCE	BICE	BIDCER	VF
Bidens	*vulgata*	beggarticks, tall	BIDVU	BIVU	BIDVUL	VF
Borreria	*alata*	borreria, winged	BOILF	BOAL4	BORALA	VF
Botrychium	*ascendens*		BOAS2		BOTASC	VE
Bouteloua	*barbata*	grama, sixweeks	BOBBA	BOBA2	BOUBAR	VG
Brasenia	*schreberi*	watershield	BRESC	BRSC	BRASCH	VF
Brassica	*campestris*	mustard, birdsrape	BRSRA	BRCA2	BRACAM	VF
Brassica	*rapa*	mustard, birdsrape	BRSRA	BRRA	BRACAM	VF
Brassica	*nigra*	mustard, black	BRSNI	BRNI	BRANIG	VF
Brassica	*juncea*	mustard, Indian	BRSJU	BRJU	BRAJUN	VF
Brassica	*alba*	mustard, white	SINAL		BRAHIR	VF
Brassica	*hirta*	mustard, white	SINAL	BRHI2	BRAHIR	VF
Brassica	*arvensis*	mustard, wild	SINAR	BRAR11	BRAKAB	VF
Brassica	*kaber*	mustard, wild	SINAR	BRKA	BRAKAB	VF
Brickellia	*eupatorioides*	boneset, false	KUHEU	BREU	KUHEUP	VF
Bromus	*carinatus*	brome, California	BROCN	BRCA5	BROCAR	VG
Bromus	*tectorum*	brome, downy	BROTE	BRTE	BROTEC	VG
Bromus	*arvensis*	brome, field	BROAV	BRAR5	BROARV	VG
Bromus	*rubens*	brome, foxtail	BRORU	BRRU2	BRORUB	VG
Bromus	*japonicus*	brome, Japanese	BROJA	BRJA	BROJAP	VG
Bromus	*erectus*	brome, meadow	BROER	BRER3	BROERE	VG
Bromus	*marginatus*	brome, mountain	BROMG	BRMA4	BROCAR	VG
Bromus	*sterilis*	brome, poverty	BROST	BRST2	BROSTE	VG
Bromus	*brizaeformis*	brome, rattlesnake	BROBR	BRBR7	BROBRI	VG
Bromus	*rigidus*	brome, ripgut	BRODI	BRRI8	BRORIG	VG
Bromus	*inermis*	brome, smooth	BROIN	BRIN2	BROINE	VG
Bromus	*hordeaceus*	brome, soft	BROMO	BRHO2	BROMOL	VG
Bromus	*mollis*	brome, soft	BROMO	BRMO2	BROMOL	VG
Bromus	*secalinus*	cheat	BROSE	BRSE	BROSEC	VG
Bromus	*commutatus*	chess, hairy	BROCO	BRCO4	BROCOM	VG
Bromus	*catharticus*	rescuegrass	BROCA	BRCA6	BROCAT	VG
Bryonia	*alba*	bryony, white	BYOAL	BRAL4	BRYALB	VF
Bryum	*pseudotriquetrum*		BRPS70		BRYPSE	NM
Buchloe	*dactyloides*	buffalograss	BUCDA	BUDA	BUCDAC	VG
Buglossoides	*arvense*	gromwell, corn	LITAR	BUAR3	LITARV	VF
Butomus	*umbellatus*	rush, flowering	BUTUM	BUUM	BUTUMB	VF
Cakile	*maritima*	sea-rocket	CAKMA	CAMA	CAKMAR	VF
Callirhoe	*involucrata*	poppymallow, purple	COEIN	CAIN2	CALINV	VF
Callitriche	*palustris*	waterstarwort	CLTPA	CAPA52	CALVER	VF
Callitriche	*verna*	waterstarwort	CLTPA	CAVE2	CALVER	VF
Callitriche	*stagnalis*	waterstarwort, European	CLTST	CAST	CALSTA	VF
Calystegia	*sepium*	bindweed, hedge	CAGSE	CASE13	CALSEP	VF
Calystegia	*pubescens*	bindweed, Japanese	CAGHE	CAPU17	CONJAP	VF

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Camelina	*sativa*	falseflax, largeseed	CMASA	CASA2	CAMSAT	VF
Camelina	*microcarpa*	flax, false smallseed	CMAMI	CAMI2	CAMMIC	VF
Campanula	*glomerata*	bellflower, clustered	CMPGL	CAGL2	CAMGLO	VF
Campanula	*rapunculoides*	bellflower, creeping	CMPRA	CARA	CAMRAP	VF
Campsis	*radicans*	trumpetcreeper	CMIRA	CARA2	CAMRAD	VS
Cannabis	*sativa*	marijuana	CNISA	CASA3	CANSAT	VF
Capsella	*bursa-pastoris*	shepherd's-purse	CAPBP	CABU2	CAPBUR	VF
Cardamine	*pensylvanica*	bittercress, Pennsylvania	CARPE	CAPE3	CARPES	VF
Cardaria	*draba*	cress, hoary	CADDR	CADR	CARDRA	VF
Cardaria	*pubescens*	whitetop, hairy	CADPU	CAPU6	CARPUB	VF
Carduus	*pycnocephalus*	thistle, Italian	CRUPY	CAPY2	CARPYC	VF
Carduus	*nutans*	thistle, musk	CRUNU	CANU4	CARNUT	VF
Carduus	*acanthoides*	thistle, plumeless	CRUAC	CAAC	CARACA	VF
Carduus	*tenuiflorus*	thistle, slenderflowered	CRUTE	CATE2	CARTEU	VF
Carduus	*crispus*	thistle, welted	CRUCR	CACR2	CARCRS	VF
Carex	*rostrata*	sedge, beaked	CRXRO	CARO6	CARROT	VG
Carex	*nebraskensis*	sedge, Nebraska	CRXNB	CANE2	CARNEB	VG
Carex	*lacustris*	sedge, ripgut	CRXLA	CALA16	CARLAC	VG
Carex	*atherodes*	sedge, sugargrass	CRXAT	CAAT2	CARATH	VG
Carex	*aquatilis*	sedge, water	CRXAQ	CAAQ	CARAQU	VG
Carex	*eurycarpa*	sedge, widefruit	CRXEU	CAEU2	CAREUR	VG
Carex	*lasiocarpa*	sedge, woolfruit	CRXLC	CALA11	CARLAS	VG
Carthamus	*lanatus*	thistle, distaff	CAULA	CALA20	CARLAN	VF
Carum	*carvi*	caraway, common	CRYCA	CACA19	CARCAR	VF
Cenchrus	*longispinus*	sandbur, longspine	CCHPA	CELO3	CENLON	VG
Centaurea	*cyanus*	cornflower	CENCY	CECY2	CENCYA	VF
Centaurea	*macrocephala*	knapweed, bighead	CENMC	CEMA9	CENMAR	VF
Centaurea	*nigra*	knapweed, black	CENNI	CENI2	CENNIG	VF
Centaurea	*jacea*	knapweed, brown	CENJA	CEJA	CENJAC	VF
Centaurea	*diffusa*	knapweed, diffuse	CENDI	CEDI3	CENDIF	VF
Centaurea	*repens*	knapweed, Russian	CENRE	CERE6	CENREP	VF
Centaurea	*maculosa*	knapweed, spotted	CENMA	CEMA4	CENMAC	VF
Centaurea	*squarrosa*	knapweed, squarrose	CENSQ	CESQ	CENVIR	VF
Centaurea	*virgata*	knapweed, squarrose	CENSQ	CEVI	CENVIR	VF
Centaurea	*virgata*	knapweed, squarrose	CENSQ	CEVIS	CENVIR	VF
Centaurea	*nigrescens*	knapweed, Vochin	CENVO	CENI3	CENNIR	VF
Centaurea	*iberica*	starthistle, Iberian	CENIB	CEIB	CENIBE	VF
Centaurea	*calcitrapa*	starthistle, purple	CENCA	CECA2	CENCAL	VF
Centaurea	*solstitialis*	starthistle, yellow	CENSO	CESO3	CENSOL	VF
Centaurea	*melitensis*	thistle, Napa	CENME	CEME2	CENMEL	VF
Centaurea	*trichocephala*		CENTC	CETR12	CENTRC	VF
Cerastium	*arvense*	chickweed, field	CERAR	CEAR4	CERARV	VF
Cerastium	*vulgatum*	chickweed, mouseear	CERVU	CEVU	CERVUL	VF
Cerastium	*brachypodum*	chickweed, nodding	CERNU	CEBR3	CERNUT	VF
Cerastium	*nutans*	chickweed, nodding	CERNU	CENU2	CERNUT	VF
Cerastium	*glomeratum*	chickweed, sticky	CERGL	CEGL2	CERVIS	VF
Cerastium	*viscosum*	chickweed, sticky	CERGL	CEVI3	CERVIS	VF
Ceratophyllum	*demersum*	coontail	CEYDE	CEDE4	CERDEM	VF

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Appendix 13

Scientific Name				National		
Genus	Species/ Authority	Common Name	Bayer or WSSA ID	Plants NRCS ID	Region 1 USFS ID	Plant Type *
Chaenorrhinum	*minus*	snapdragon, dwarf	CHNMI	CHMI	CHAMIN	VF
Chamaesyce	*serpens*	spurge, creeping	EPHSN	CHSE4	EUPSEP	VF
Chamaesyce	*nutans*	spurge, nodding	EPHNU	CHNU9	EUPNUT	VF
Chamaesyce	*glyptosperma*	spurge, ridgeseed	EPHGL	CHGL13	EUPGLY	VF
Chamaesyce	*maculata*	spurge, spotted	EPHMA	CHMA15	EUPMAU	VF
Chelidonium	*majus*	celandine, greater	CHQMA	CHMA2	CHEMAJ	VF
Chenopodium	*capitatum*	goosefoot, blite	CHECA	CHCA4	CHECAP	VF
Chenopodium	*botrys*	goosefoot, Jerusalem oak	CHEBO	CHBO2	CHEBOT	VF
Chenopodium	*gigantospermum*	goosefoot, maple leaf	CHEHQ	CHGI2	CHEGIG	VF
Chenopodium	*incanum*	goosefoot, mealy	CHEIN	CHIN2	CHEFRE	VF
Chenopodium	*murale*	goosefoot, nettle leaf	CHEMU	CHMU2	CHEMUR	VF
Chenopodium	*glaucum*	goosefoot, oakleaf	CHEGL	CHGL3	CHEGLA	VF
Chenopodium	*rubrum*	goosefoot, red	CHERU	CHRU	CHERUB	VF
Chenopodium	*album*	lambsquarters, common	CHEAL	CHAL7	CHEALB	VF
Chenopodium	*desiccatum*	lambsquarters, narrow leaf	CHEPR	CHDE	CHELEP	VF
Chenopodium	*berlandieri*	lambsquarters, netseed	CHEBE	CHBE4	CHEALB	VF
Chenopodium	*leptophyllum*	lambsquarters, slimleaf	CHELE	CHLE4	CHELEP	VF
Chenopodium	*ambrosioides*	tea, Mexican	CHEAM	CHAM	CHEAMB	VF
Chloris	*virgata*	fingergrass, feather	CHRVI	CHVI4	CHLVIR	VG
Chloris	*verticillata*	windmillgrass, tumble	CHRVE	CHVE2	CHLVER	VG
Chondrilla	*juncea*	skeletonweed, rush	CHOJU	CHJU	CHOJUN	VF
Chorispora	*tenella*	mustard, blue	COBTE	CHTE2	CHOTEN	VF
Chrysanthemum	*balsamita*	chrysanthemum, costmary	CHYBA	CHBA6	CHRBAL	VF
Chrysanthemum	*leucanthemum*	daisy, oxeye	CHYLE	CHLE80	CHRLEU	VF
Chrysanthemum	*parthenium*	feverfew	CHYPA	CHPA33	CHRPAR	VF
Chrysopogon	*aciculatus*	goldbeard, small needled	CYSAC	CHAC	CHRACI	VG
Chrysothamnus	*nauseosus*	rabbitbrush, common	CYTNG	CHNAG5	CHRNAU	VS
Chrysothamnus	*viscidiflorus*	rabbitbrush, Douglas	CYTVI	CHVI8	CHRVIS	VS
Chrysothamnus	*nauseosus*	rabbitbrush, gray	CYTNA	CHNA2	CHRNAU	VS
Chrysothamnus	*graveolens*	rabbitbrush, greenplume	CYTNG	CHGR12	CHRNAU	VS
Chrysothamnus	*parryi*	rabbitbrush, Parry	CYTPA	CHPA13	CHRPAR	VS
Cichorium	*intybus*	chicory	CICIN	CIIN	CICINT	VF
Cicuta	*maculata*	waterhemlock, spotted	CIUMC	CIMA2	CICMAC	VF
Cicuta	*douglasii*	waterhemlock, western	CIUDO	CIDO	CICDOU	VF
Cimicifuga	*racemosa*	cohosh, black	CIMRA	CIRA	CIMRAC	VF
Cirsium	*vulgare*	thistle, bull	CIRVU	CIVU	CIRVUL	VF
Cirsium	*arvense*	thistle, Canada	CIRAR	CIAR4	CIRARV	VF
Cirsium	*flodmanii*	thistle, Flodman	CIRFL	CIFL	CIRFLO	VF
Cirsium	*edule*	thistle, Indian	CIRED	CIED	CIREDU	VF
Cirsium	*foliosum*	thistle, leafy	CIRFO	CIFO	CIRFOL	VF
Cirsium	*altissimum*	thistle, tall	CIRAL	CIAL2	CIRALT	VF
Cirsium	*undulatum*	thistle, wavyleaf	CIRUN	CIUN	CIRUND	VF
Cirsium	*ochrocentrum*	thistle, yellowspine	CIROH	CIOC2	CIROCH	VF
Cleome	*serrulata*	beeplant, Rocky Mountain	CLESE	CLSE	CLESER	VF
Cnicus	*benedictus*	thistle, blessed	CXDBE	CNBE	CNIBEN	VF
Commelina	*communis*	dayflower, Asiatic	COMCO	COCO3	COMCOM	VF
Commelina	*benghalensis*	spiderwort, tropical	COMBE	COBE2	COMBEN	VF
Conium	*maculatum*	hemlock, poison	COIMA	COMA2	CONMAC	VF

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Conringia	*orientalis*	mustard, haresear	CNHOR	COOR	CONORI	VF
Convolvulus	*arvensis*	bindweed, field	CONAR	COAR4	CONARV	VF
Convolvulus	*sepium*	bindweed, hedge	CAGSE	COSE14	CALSEP	VF
Convolvulus	*japonicus*	bindweed, Japanese	CAGHE	COJA2	CONJAP	VF
Conyza	*ramosissima*	fleabane, dwarf	ERIDI	CORA4	CONRAM	VF
Conyza	*bonariensis*	fleabane, hairy	ERIBO	COBO	CONBON	VF
Conyza	*canadensis*	horseweed	ERICA	COCA5	CONCAN	VF
Coreopsis	*tinctoria*	coreopsis, plains	CRLTI	COTI3	CORTIN	VF
Coriandrum	*sativum*	coriander	CORSA	COSA	CORSAT	VF
Corispermum	*hyssopifolium*	tickseed, hyssopleaf	CRQHY	COHY	CORHYS	VF
Cornus	*canadensis*	bunchberry	CRWCA	COCA13	CORCAN	VS
Coronilla	*varia*	crownvetch, trailing	CZRVA	COVA2	CORVAR	VF
Corydalis	*aurea*	corydalis, golden	COYAU	COAU2	CORAUR	VF
Corydalis	*sempervirens*	corydalis, pale	COYSE	COSE5	CORSEM	VF
Crataegus	*douglasii*	hawthorn, black	CSCDO	CRDO2	CRADOU	VS
Crataegus	*succulenta*	hawthorn, fleshy	CSCSC	CRSU5	CRASUC	VS
Crataegus	*rivularis*	hawthorn, river	CSCRV	CRRI	CRADOU	VS
Crepis	*setosa*	hawksbeard, bristly	CVPSE	CRSE2	CRESET	VF
Crepis	*tectorum*	hawksbeard, narrowleaf	CVPTE	CRTE3	CRETEC	VF
Crepis	*tectorum*	hawksbeard, rooftop	CVPTE	CRTE3	CRETEC	VF
Crepis	*capillaris*	hawksbeard, smooth	CVPCA	CRCA3	CRECAP	VF
Crepis	*occidentalis*	hawksbeard, western	CVPOC	CROC	CREOCC	VF
Croton	*texensis*	croton, Texas	CVNTE	CRTE4	CROTEX	VF
Croton	*capitatus*	croton, woolly	CVNCP	CRCA6	CROCAP	VF
Crupina	*vulgaris*	crupina, common	CJNVU	CRVU2	CRUVUL	VF
Cucumis	*anguria*	gherkin, west Indian	CUMAN	CUAN	CUCANG	VF
Cuscuta	*epithymum*	dodder, clover	CVCEY	CUEP	CUSEPI	VF
Cuscuta	*campestris*	dodder, field	CVCCA	CUCA2	CUSPEN	VF
Cuscuta	*umbrosa*	dodder, largefruit	CVCUB	CUUM2	CUSGRO	VF
Cuscuta	*indecora*	dodder, largeseed	CVCIN	CUIN	CUSIND	VF
Cuscuta	*pentagona*	dodder, lespedeza	CVCPE	CUPE3	CUSPEN	VF
Cuscuta	*polygonorum*	dodder, polygonum	CVCPO	CUPO	CUSPOL	VF
Cuscuta	*planiflora*	dodder, smallseed	CVCPL	CUPL2	CUSPLA	VF
Cuscuta	*gronovii*	dodder, swamp	CVCGR	CUGR	CUSGRO	VF
Cycloloma	*atriplicifolium*	pigweed, winged	CYMAT	CYAT	CYCATR	VF
Cymbalaria	*muralis*	ivy, Kenilworth	CBYMU	CYMU	CYMMUL	VF
Cynodon	*dactylon*	bermudagrass	CYNDA	CYDA	CYNDAC	VG
Cynoglossum	*officinale*	houndstongue	CYWOF	CYOF	CYNOFF	VF
Cynosurus	*cristatus*	dogtailgrass, crested	CYXCR	CYCR	CYNCRI	VG
Cynosurus	*echinatus*	dogtailgrass, hedgehog	CYXEC	CYEC	CYNECH	VG
Cyperus	*odoratus*	flatsedge	CYPFE	CYOD	CYPODO	VG
Cyperus	*erythrorhizos*	flatsedge, redroot	CYPET	CYER2	CYPERY	VG
Cyperus	*strigosus*	nutsedge, false	CYPST	CYST	CYPSTR	VG
Cyperus	*rotundus*	nutsedge, purple	CYPRO	CYRO	CYPROT	VG
Cyperus	*esculentus*	nutsedge, yellow	CYPES	CYES	CYPESC	VG
Cytisus	*monspessulanus*	broom, French	TLNMO	CYMO5	CYTMON	VS
Cytisus	*scoparius*	broom, scotch	SAOSC	CYSC4	CYTSCO	VS
Dactylis	*glomerata*	orchardgrass	DACGL	DAGL	DACGLO	VG

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Danthonia	*spicata*	oatgrass, poverty	DANSP	DASP2	DANSPI	VG
Daphne	*mezereum*	daphne, February	DAPME	DAME3	DAPMEZ	VS
Datura	*meteloides*	datura, sacred	DATIN	DAME2	DATINO	VF
Datura	*stramonium*	jimsonweed	DATST	DAST	DATSTR	VF
Daucus	*pusillus*	carrot, southwestern	DAUPU	DAPU3	DAUPUS	VF
Daucus	*carota*	carrot, wild	DAUCA	DACA6	DAUCAR	VF
Delphinium	*occidentale*	larkspur, duncecap	DELOC	DEOC	DELOCC	VF
Delphinium	*geyeri*	larkspur, Geyer	DELGE	DEGE2	DELGEY	VF
Delphinium	*nuttallianum*	larkspur, low	DELNU	DENU2	DELNUT	VF
Delphinium	*nuttallianum*	nuttall	DENUF	C. L. Hitchc.	DELNUT	VF
Descurainia	*sophia*	flixweed	DESSO	DESO2	DESSOP	VF
Descurainia	*pinnata*	tansymustard, pinnate	DESPI	DEPI	DESPIN	VF
Descurainia	*pinnata*	tansymustard, pinnate	DESRB	DEPIB2	DESPIN	VF
Descurainia	*richardsonii*	tansymustard, Richardson	DESRI	DERI2	DESRIC	VF
Desmanthus	*illinoensis*	bundleflower, Illinois	DEMIL	DEIL	DESILL	VF
Dianthus	*armeria*	pink, Deptford	DINAR	DIAR	DIAARM	VF
Diervilla	*lonicera*	honeysuckle, bush	DIVLO	DILO	DIELON	VS
Digitalis	*purpurea*	foxglove	DIKPU	DIPU	DIGPUR	VF
Digitaria	*scalarum*	crabgrass, ladder	DIGSC	DISC5	DIGSCA	VG
Digitaria	*sanguinalis*	crabgrass, large	DIGSA	DISA	DIGSAN	VG
Digitaria	*ischaemum*	crabgrass, smooth	DIGIS	DIIS	DIGISC	VG
Digitaria	*velutina*	crabgrass, velvety	DIGVE	DIVE2	DIGVEL	VG
Diplachne	*fascicularis*	sprangletop, bearded	LEFFA	DIFA4	LEPFAS	VG
Diplotaxis	*muralis*	rocket, sand	DIPMU	DIMU2	DIPMUR	VF
Diplotaxis	*tenuifolia*	rocket, wall	DIPTE	DITE4	DIPTEN	VF
Dipsacus	*fullonum*	teasel, common	DIWSI	DIFU2	DIPFUL	VF
Dipsacus	*sylvestris*	teasel, common	DIWSI	DISY	DIPFUL	VF
Distichlis	*spicata*	saltgrass	DISSP	DISP	DISSPI	VG
Draba	*verna*	whitlowgrass, spring	ERPVE	DRVE2	DRAVER	VF
Draba	*nemorosa*	whitlowgrass, wood	DRBNE	DRNE	DRANEM	VF
Dracocephalum	*parviflorum*	dragonhead, American	DRAPA	DRPA2	DRAPAR	VF
Drymaria	*arenarioides*	drymaria, sandy	DRYAR	DRAR7	DRYARE	VF
Dugaldia	*hoopesii*	sneezeweed, orange	HENHO	DUHO	HELHOP	VF
Dyssodia	*papposa*	marigold, fetid	DYSPA	DYPA	DYSPAP	VF
Echinacea	*pallida*	echinacea, pale	ECEPA	ECPA	ECHANG	VF
Echinochloa	*colona*	grass, small barnyard	ECHCO	ECCO2	ECHCOL	VG
Echinocystis	*oregana*	bigroot	ECNOR	ECOR3	MARORE	VF
Echinocystis	*lobata*	cucumber, wild	ECNLO	ECLO	ECHLOB	VF
Echinops	*sphaerocephalus*	globethistle, great	ECPSP	ECSP	ECHSPH	VF
Echium	*vulgare*	blueweed	EHIVU	ECVU	ECHVUL	VF
Egeria	*densa*	elodea, Brazillian	ELDDE	EGDE	EGEDEN	VF
Eichhornia	*crassipes*	waterhyacinth	EICCR	EICR	EICCRA	VF
Eichhornia	*azurea*	waterhyacinth, anchored	EICAZ	EIAZ2	EICAZU	VF
Eichhornia	*azurea*	waterhyacinth, peacock	EICAZ	EIAZ2	EICAZU	VF
Elaeagnus	*umbellata*	olive, autumn	ELGUM	ELUM	ELAUMB	VT
Elaeagnus	*angustifolia*	olive, Russian	ELGAN	ELAN	ELAANG	VT
Elatine	*triandra*	waterwort	ELTTR	ELTR	ELATRI	VF
Eleocharis	*rostellata*	spikerush, beaked	ELORO	ELRO2	ELEROS	VG

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Eleocharis	*obtusa*	spikerush, blunt	ELOOB	ELOB2	ELEOBT	VG
Eleocharis	*palustris*	spikerush, creeping	ELOPA	ELPA3	ELEPAL	VG
Eleocharis	*parvula*	spikerush, dwarf	ELPA5		ELEPAR	VG
Eleocharis	*acicularis*	spikerush, needle	ELOAC	ELAC	ELEACI	VG
Eleocharis	*obtusa*	spikerush, ovoid	ELOOB	ELOB2	ELEOBT	VG
Eleusine	*indica*	goosegrass	ELEIN	ELIN3	ELEIND	VG
Ellisia	*nyctelea*	waterpod	ELSNY	ELNY	ELLNYC	VF
Elodea	*densa*	elodea, Brazillian	ELDDE	ELDE3	EGEDEN	VF
Elodea	*canadensis*	elodea, common	ELDCA	ELCA7	ELOCAN	VF
Elodea	*nuttallii*	elodea, western	ELDNU	ELNU2	ELONUT	VF
Elodea	*longivaginata*	waterweed, longsheath	ELDLO	ELLO2	ELOBIF	VF
Elymus	*caput-medusae*	medusahead	ELYCM	ELCA13	TAECAP	TA
Elymus	*elymoides*	squirreltail	SITHY	ELEL5	SITHYS	VG
Elymus	*trachycaulus*	wheatgrass, slender	AGRTR	ELTR7	AGRCAN	VG
Elymus	*virginicus*	wildrye, Virginia	ELYVI	ELVI3	ELYVIR	VG
Elytrigia	*repens*	quackgrass	AGRRE	ELRE3	AGRREP	VG
Emex	*australis*	dock, southern	EMEAU	EMAU	EMEAUS	VF
Emex	*spinosa*	dock, spined	EMESP	EMSP	EMESPI	VS
Epilobium	*hirsutum*	fiddle-grass	EPIHI	EPHI	EPIHIR	VF
Epilobium	*angustifolium*	fireweed	CHAAN	EPAN2	EPIANG	VF
Epilobium	*adenocaulon*	willowweed, American	EPIAC	EPAD	EPIPAN	VF
Epilobium	*paniculatum*	willowweed, panicle	EPIPC	EPPA2	EPIPAN	VF
Equisetum	*arvense*	horsetail, field	EQUAR	EQAR	EQUARV	VE
Equisetum	*telmateia*	horsetail, giant	EQUTE	EQTE	EQUTEL	VE
Equisetum	*palustre*	horsetail, marsh	EQUPA	EQPA	EQUPAL	VE
Equisetum	*sylvaticum*	horsetail, sylvan	EQUSY	EQSY	EQUSYL	VE
Equisetum	*fluviatile*	horsetail, water	EQUFL	EQFL	EQUFLU	VE
Equisetum	*hyemale*	scouringrush	EQUHY	EQHY	EQUHYE	VE
Eragrostis	*pilosa*	lovegrass, India	ERAPI	ERPI2	ERAPIL	VG
Eragrostis	*spectabilis*	lovegrass, purple	ERASP	ERSP	ERASPE	VG
Eragrostis	*pectinacea*	lovegrass, tufted	ERAPE	ERPE	ERAPEC	VG
Eragrostis	*cilianensis*	stinkgrass	ERACN	ERCI	ERACIL	VG
Erechtites	*minima*	burnweed, Australian	EREPR	ERMI6	EREMIN	VF
Eremocarpus	*setigerus*	mullein, turkey	ERMSE	ERSE3	ERESET	VF
Erigeron	*annuus*	fleabane, annual	ERIAN	ERAN	ERIANS	VF
Erigeron	*divaricatus*	fleabane, dwarf	ERIDI	ERDI12	CONRAM	VF
Erigeron	*speciosus*	fleabane, Oregon	ERISP	ERSP4	ERISPE	VF
Erigeron	*philadelphicus*	fleabane, Philadelphia	ERIPH	ERPH	ERIPHI	VF
Erigeron	*strigosus*	fleabane, rough	ERIST	ERST3	ERISTR	VF
Erigeron	*canadensis*	horseweed	ERICA	ERCA20	CONCAN	VF
Eriochloa	*gracilis*	cupgrass, southwestern	ERBGR	ERGR4	ERIGRA	VG
Erodium	*cicutarium*	filaree, redstem	EROCI	ERCI6	EROCIC	VF
Erodium	*moschatum*	filaree, whitestem	EROMO	ERMO7	EROMOS	VF
Erophila	*verna*	whitlowgrass, spring	ERPVE	ERVE8	DRAVER	VF
Eruca	*sativa*	rocket, garden	ERUVE	ERSA7	ERUSAT	VF
Erucastrum	*gallicum*	mustard, dog	ERWGA	ERGA	ERUGAL	VF
Erysimum	*cheiranthoides*	mustard, wallflower	ERYCH	ERCH9	ERYCHE	VF
Erysimum	*repandum*	wallflower, bushy	ERYRE	ERRE4	ERYREP	VF

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Erysimum	*asperum*	wallflower, western	ERYAS	ERAS2	ERYASP	VF
Euclidium	*syriacum*	mustard, Syrian	EUISY	EUSY	EUCSYR	VF
Euonymus	*atropurpureus*	wahoo, eastern	EUOAT	EUAT3	EUOATR	VS
Eupatorium	*perfoliatum*	boneset	EUPPE	EUPE3	EUPPER	VF
Eupatorium	*maculatum*	joepyeweed, spotted	EUPML	EUMA6	EUPMAC	VF
Eupatorium	*rugosum*	snakeroot, swamp	EUPRU	EURU6	EUPRUG	VF
Eupatorium	*adenophorum*	thoroughwort, gland-bearing	EUPAD	EUAD2	EUPADE	VF
Euphorbia	*marginata*	snow-on-the-mountain	EPHMG	EUMA8	EUPMAR	VF
Euphorbia	*serpens*	spurge, creeping	EPHSN	EUSE4	EUPSEP	VF
Euphorbia	*cyparissias*	spurge, cypress	EPHCY	EUCY2	EUPCYP	VF
Euphorbia	*esula*	spurge, leafy	EPHES	EUES	EUPESU	VF
Euphorbia	*spathulata*	spurge, netseed	EPHSQ	EUSP	EUPSPA	VF
Euphorbia	*nutans*	spurge, nodding	EPHNU	EUNU	EUPNUT	VF
Euphorbia	*peplus*	spurge, petty	EPHPE	EUPE6	EUPPEP	VF
Euphorbia	*prunifolia*	spurge, plum-leafed	EPHPR	EUPR5	EUPPRU	VF
Euphorbia	*glyptosperma*	spurge, ridgeseed	EPHGL	EUGL3	EUPGLY	VF
Euphorbia	*maculata*	spurge, spotted	EPHMA	EUMA7	EUPMAU	VF
Euphorbia	*supina*	spurge, spotted	EPHMA	EUSU	EUPMAU	VF
Euphorbia	*helioscopia*	spurge, sun	EPHHE	EUHE2	EUPHEL	VF
Euphorbia	*dentata*	spurge, toothed	EPHDE	EUDE4	EUPDEN	VF
Euthamia	*graminifolia*	goldenrod, narrowleaf	SOOGR	EUGR5	SOLGRA	VF
Euthamia	*occidentalis*	goldenrod, western	SOOOC	EUOC4	SOLOCC	VF
Festuca	*megalura*	fescue, foxtail	FESME	FEME	FESMEG	VG
Festuca	*elatior*	fescue, meadow	FESPR	FEEL	FESPRA	VG
Festuca	*pratensis*	fescue, meadow	FESPR	FEPR	FESPRA	VG
Festuca	*myuros*	fescue, rattail	VLPMY	FEMY2	FESMYU	VG
Festuca	*rubra*	fescue, red	FESRU	FERU2	FESRUB	VG
Festuca	*ovina*	fescue, sheep	FESOV	FEOV	FESOVI	VG
Festuca	*octoflora*	fescue, sixweeks	FESOC	FEOC3	FESOCT	VG
Festuca	*microstachys*	fescue, small	VLPMI	FEMI2	FESMIC	VG
Festuca	*arundinacea*	fescue, tall	FESAR	FEAR3	FESARU	VG
Filipendula	*hexapetala*	dropwort	FIIVU	FIHE2	FILVUL	VF
Filipendula	*vulgaris*	dropwort	FIIVU	FIVU	FILVUL	VF
Filipendula	*rubra*	queen-of-the-prairie	FIIRU	FIRU2	FILRUB	VF
Foeniculum	*vulgare*	fennel	FOEVU	FOVU	FOEVUL	VF
Fragaria	*virginiana*	strawberry, wild	FRAVI	FRVI	FRAVIR	VF
Franseria	*acanthicarpa*	bursage, annual	FRSAC	FRAC2	AMBACA	VF
Franseria	*discolor*	bursage, perrenial	FRSTO	FRDI3	AMBTOM	VF
Fumaria	*officinalis*	fumitory	FUMOF	FUOF	FUMOFF	VF
Gaillardia	*pulchella*	gaillardia, rosering	GAIPU	GAPU	GAIPUL	VF
Galega	*officinalis*	goatsrue	GAGOF	GAOF	GALOFF	VF
Galeopsis	*tetrahit*	hempnettle, common	GAETE	GATE2	GALTET	VF
Galinsoga	*ciliata*	galinsoga, hairy	GASCI	GACI4	GALQUA	VF
Galinsoga	*parviflora*	galinsoga, smallflower	GASPA	GAPA2	GALPAR	VF
Galium	*aparine*	bedstraw, catchweed	GALAP	GAAP2	GALAPA	VF
Galium	*boreale*	bedstraw, northern	GALBO	GABO2	GALBOR	VF
Galium	*mollugo*	bedstraw, smooth	GALMO	GAMO	GALMOL	VF
Galium	*verum*	bedstraw, yellow	GALVE	GAVE	GALVER	VF

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Appendix 13

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Gaura	*coccinea*	gaura, scarlet	GAACO	GACO5	GAUCOC	VF
Geranium	*carolinianum*	geranium, Carolina	GERCA	GECA5	GERCAR	VF
Geranium	*dissectum*	geranium, cutleaf	GERDI	GEDI	GERDIS	VF
Geranium	*molle*	geranium, dovefoot	GERMO	GEMO	GERMOL	VF
Geranium	*pusillum*	geranium, smallflower	GERPU	GEPU2	GERPUS	VF
Geranium	*robertianum*	robert, herb	GERRO	GERO	GERROB	VF
Glyceria	*canadensis*	mannagrass, rattlesnake	GLYCA	GLCA	GLYCAN	VG
Glycyrrhiza	*lepidota*	licorice, wild	GYCLE	GLLE3	GLYLEP	VF
Gnaphalium	*macounii*	cudweed, clammy	GNAMA	GNMA	GNAVIS	VF
Gnaphalium	*viscosum*	cudweed, clammy	GNAMA	GNVI	GNAVIS	VF
Gnaphalium	*chilense*	cudweed, cottonbatting	GNACH	GNCH	GNACHI	VF
Gnaphalium	*uliginosum*	cudweed, low	GNAUL	GNUL	GNAULI	VF
Gnaphalium	*purpureum*	cudweed, purple	GNAPU	GNPU2	GNAPUR	VF
Grindelia	*squarrosa*	gumweed, curlycup	GRNSQ	GRSQ	GRISQU	VF
Gutierrezia	*sarothrae*	snakeweed, broom	GUESA	GUSA2	GUTSAR	VS
Gypsophila	*paniculata*	babysbreath	GYPPA	GYPA	GYPPAN	VF
Hackelia	*floribunda*	stickseed, western	HACFL	HAFL2	HACFLO	VF
Halogeton	*glomeratus*	halogeton	HALGL	HAGL	HALGLO	VF
Hedera	*helix*	ivy, English	HEEHE	HEHE	HEDHEL	VF
Helenium	*autumnale*	sneezeweed, common	HENAU	HEAU	HELAUT	VF
Helenium	*hoopesii*	sneezeweed, orange	HENHO	HEHO5	HELHOP	VF
Helianthus	*tuberosus*	artichoke, Jerusalem	HELTU	HETU	HELTUB	VF
Helianthus	*ciliaris*	blueweed, Texas	HELCI	HECI	HELCIL	VF
Helianthus	*annuus*	sunflower, common	HELAN	HEAN3	HELANN	VF
Helianthus	*maximilianii*	sunflower, Maximilian	HELMA	HEMA2	HELMAX	VF
Helianthus	*petiolaris*	sunflower, prairie	HELPE	HEPE	HELPET	VF
Helianthus	*rigidus*	sunflower, stiff	HELRI	HERI2	HELRIG	VF
Heliopsis	*helianthoides*	oxeye	HEFHE	HEHE5	HELHEL	VF
Heliotropium	*curassavicum*	heliotrope, seaside	HEOCU	HECU3	HELCUR	VF
Heliotropium	*curassavicum*	heliotrope, spatulateleaf	HEOCB	HECUO2	HELCUR	VF
Hemerocallis	*fulva*	daylily, tawny	HEGFU	HEFU	HEMFUL	VF
Hemizonia	*pungens*	spikeweed	HEZPU	HEPU5	HEMPUN	VF
Hesperis	*matronalis*	damesrocket	HEVMA	HEMA3	HESMAT	VF
Heteranthera	*dubia*	waterstargrass	HETDU	HEDU2	ZOSDUB	VF
Heterotheca	*subaxillaris*	camphorweed	HTTSU	HESU3	HETSUB	VF
Hibiscus	*trionum*	mallow, Venice	HIBTR	HITR	HIBTRI	VF
Hieracium	*vulgatum*	hawkweed, common	HIELA	HIVU	HIEVUL	VF
Hieracium	*piloselloides*	hawkweed, kingdevil	HIEPO	HIPI2	HIEPIL	VF
Hieracium	*pratense*	hawkweed, meadow	HIECA	HIPR	HIEPRA	VF
Hieracium	*pilosella*	hawkweed, mouseear	HIEPI	HIPI	HIEPIO	VF
Hieracium	*umbellatum*	hawkweed, narrowleaf	HIEUM	HIUM	HIEUMB	VF
Hieracium	*aurantiacum*	hawkweed, orange	HIEAU	HIAU	HIEAUR	VF
Hieracium	*pratense*	hawkweed, yellow	HIECA	HIPR	HIEPRA	VF
Hieracium	*floribundum*	hawkweed, yellowdevil	HIEFL	HIFL4	HIEFLO	VF
Hippuris	*vulgaris*	marestail	HPPVU	HIVU2	HIPVUL	VF
Hoffmanseggia	*densiflora*		HOFDE	HODE	HEFDEN	VF
Holcus	*lanatus*	velvetgrass, common	HOLLA	HOLA	HOLLAN	VG
Holcus	*mollis*	velvetgrass, German	HOLMO	HOMO	HOLMOL	VG

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Holosteum	*umbellatum*	spurry, umbrella	HLOUM	HOUM	HOLUMB	VF
Hordeum	*vulgare*	barley	HORVX	HOVU	HORVUL	VG
Hordeum	*jubatum*	barley, foxtail	HORJU	HOJU	HORJUB	VG
Hordeum	*leporinum*	barley, hare	HORLE	HOLE	HORLEP	VG
Hordeum	*murinum*	barley, hare	HORLE	HOMU	HORMUR	VG
Hordeum	*pusillum*	barley, little	HORPU	HOPU	HORPUS	VG
Hordeum	*brachyantherum*	barley, meadow	HORBR	HOBR2	HORBRA	VG
Hordeum	*geniculatum*	barley, Mediterranean	HORMG	HOGE	HORGEN	VG
Hordeum	*hystrix*	barley, Mediterranean	HORMG	HOHY	HORGEN	VG
Hordeum	*stebbinsii*	barley, mouse	HORST	HOST	HORMUR	VG
Hordeum	*distichon*		HORDI	HODI2	HORDIS	VG
Hydrilla	*verticillata*	hydrilla, whorled-leaved	HYLLI	HYVE3	HYDVER	VF
Hydrocotyle	*ranunculoides*	pennywort, floating water	HYDRA	HYRA	HYDRAN	VF
Hygrophila	*polysperma*	hydrilla, many-seeded	HYGPO	HYPO3	HYGPOL	VF
Hyoscyamus	*niger*	henbane, black	HSYNI	HYNI	HYONIG	VF
Hypericum	*perforatum*	St. Johnswort, common	HYPPE	HYPE	HYPPER	VF
Hyssopus	*officinalis*	hyssop	HYSOF	HYOF	HYSOFF	VF
Imperata	*brasiliensis*	imperata, Brazillian	IMPBR	IMBR	IMPBRA	VG
Imperata	*cylindrica*	imperata, cylindrical	IMPCY	IMCY	IMPCYL	VG
Inula	*helenium*	inula	INUHE	INHE	INUHEL	VF
Ipomoea	*coccinea*	morningglory, red	IPOCC	IPCO3	IPOCOC	VF
Ipomoea	*purpurea*	morningglory, tall	PHBPU	IPPU2	IPOPUR	VF
Ipomoea	*triloba*	morningglory, threelobe	IPOTR	IPTR2	IPOTRI	VF
Ipomoea	*hirsutula*	morningglory, woolly	IPOHT	IPHI2	IPOHIR	VF
Ipomoea	*aquatica*	spinach, water	IPOAQ	IPAQ	IPOAQU	VF
Iris	*pseudacorus*	iris, yellowflag	IRIPS	IRPS	IRIPSE	VF
Isatis	*tinctoria*	woad, dyer's	ISATI	ISTI	ISATIN	VF
Ischaemum	*rugosum*	beak, wrinkle duck	ISCRU	ISRU	ISCRUG	VG
I*va*	*xanthifolia*	marshelder	IVAXA	IVXA	IVAXAN	VF
Iva	*annua*	marshelder, annual	IVAAN	IVAN2	IVAANN	VF
Iva	*axillaris*	sumpweed, poverty	IVAAX	IVAX	IVAAXI	VF
Iva	*ciliata*	sumpweed, rough	IVACI	IVCI2	IVAANN	VF
Juncus	*balticus*	rush, Baltic	IUNBA	JUBA	JUNBAL	VG
Juncus	*tenuis*	rush, slender	IUNTE	JUTE	JUNTEN	VG
Juncus	*effusus*	rush, soft	IUNEF	JUEF	JUNEFF	VG
Juncus	*bufonius*	rush, toad	IUNBU	JUBU	JUNBUF	VG
Juncus	*acuminatus*	rush, tufted	IUNAN	JUAC	JUNACU	VG
Juniperus	*communis*	juniper, common	IUPCO	JUCO6	JUNCOM	VS
Juniperus	*virginiana*	redcedar, eastern	IUPVI	JUVI	JUNVIR	VT
Jussiaea	*repens*		LUDPE	JUREP2	JUSREP	VF
Kickxia	*elatine*	fluvellin, sharppoint	KICEL	KIEL	KICELA	VF
Kickxia	*spuria*		KICSP	KISP	KICSPU	VF
Knautia	*arvensis*	bluebuttons	KNAAR	KNAR	KNAARV	VF
Kochia	*scoparia*	kochia	KCHSC	KOSC	KOCSCO	VF
Kochia	*americana*	molly, green	KCHAM	KOAM	KOCAME	VF
Kuhnia	*eupatorioides*	boneset, false	KUHEU	KUEU	KUHEUP	VF
Lactuca	*biennis*	lettuce, biennial	LACBI	LABI	LACBIE	VF
Lactuca	*pulchella*	lettuce, blue	LACPU	LAPU	LACOBL	VF

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Lactuca	*serriola*	lettuce, prickly	LACSE	LASE	LACSER	VF
Lactuca	*canadensis*	lettuce, tall	LACCA	LACA	LACCAN	VF
Lactuca	*muralis*	lettuce, wall	MYLMU	LAMU	LACMUR	VF
Lactuca	*saligna*	lettuce, willowleaf	LACSL	LASA	LACSAL	VF
Lamium	*purpureum*	deadnettle, purple	LAMPU	LAPU2	LAMPUR	VF
Lamium	*maculatum*	deadnettle, spotted	LAMMA	LAMA	LAMMAC	VF
Lamium	*amplexicaule*	henbit	LAMAM	LAAM	LAMAMP	VF
Lappula	*echinata*	sticktight, European	LPLSQ	LAEC	LAPECH	VF
Lappula	*redowskii*	sticktight, western	LPLOC	LARE	LAPRED	VF
Lapsana	*communis*	nipplewort	LAPCO	LACO3	LAPCOM	VF
Larrea	*tridentata*	creosotebush	LARTR	LATR2	LARTRI	VS
Lathyrus	*latifolius*	peavine, everlasting	LTHLA	LALA4	LATLAT	VF
Lathyrus	*sylvestris*	peavine, flat	LTHSY	LASY	LATSYL	VF
Lathyrus	*palustris*	peavine, marsh	LTHPA	LAPA4	LATPAL	VF
Lathyrus	*pratensis*	peavine, meadow	LTHPR	LAPR	LATPRA	VF
Ledum	*groenlandicum*	tea, Labrador	LEDGR	LEGR	LEDGRO	VS
Leersia	*oryzoides*	cutgrass, rice	LEROR	LEOR	LEEORY	VG
Lemna	*perpusilla*	duckmeal	LEMPA	LEPE	LEMPER	VF
Lemna	*minor*	duckweed, common	LEMMI	LEMI3	LEMMIN	VF
Lemna	*trisulca*	duckweed, star	LEMTR	LETR	LEMTRI	VF
Leontodon	*nudicaulis*	hawkbit	LEBNT	LENU2	LEONUD	VF
Leontodon	*autumnalis*	hawkbit, fall	LEBAU	LEAU2	LEOAUT	VF
Leonurus	*cardiaca*	motherwort	LECCA	LECA2	LEOCAR	VF
Lepidium	*sativum*	cress, garden	LEPSA	LESA2	LEPSAT	VF
Lepidium	*perfoliatum*	pepperweed, clasping	LEPPE	LEPE2	LEPPER	VF
Lepidium	*campestre*	pepperweed, field	LEPCA	LECA5	LEPCAM	VF
Lepidium	*densiflorum*	pepperweed, greenflower	LEPDE	LEDE	LEPDEN	VF
Lepidium	*ruderale*	pepperweed, narrowleaf	LEPRU	LERU	LEPRUD	VF
Lepidium	*latifolium*	pepperweed, perennial	LEPLA	LELA2	LEPLAT	VF
Lepidium	*virginicum*	pepperweed, Virginia	LEPVI	LEVI3	LEPVIR	VF
Leptochloa	*fascicularis*	sprangletop, bearded	LEFFA	LEFA	LEPFAS	VG
Leptochloa	*uninervia*	sprangletop, Mexican	LEFUN	LEUN2	LEPUNI	VG
Leptochloa	*chinensis*	sprangletop, red	LEFCH	LECH2	LEPCHI	VG
Lepyrodiclis	*holosteoides*		LDCHO	LEHO7	LEPHOL	VF
Liatris	*punctata*	gayfeather, dotted	LTSPU	LIPU	LIAPUN	VF
Limnobium	*spongia*		LIMSP	LISP2	LIMSPO	VF
Limnophila	*sessiliflora*	limnophila, sedentary	LIOSE	LISE3	LIMSEI	VF
Linaria	*dalmatica*	toadflax, Dalmatian	LINDA	LIDA	LINDAL	VF
Linaria	*genistifolia*	toadflax, Dalmatian	LINDA	LIGE	LINDAL	VF
Linaria	*canadensis*	toadflax, oldfield	LINCA	LICA6	LINCAN	VF
Linaria	*texana*	toadflax, Texas	LINTX	LITE5	LINCAN	VF
Linaria	*vulgaris*	toadflax, yellow	LINVU	LIVU2	LINVUL	VF
Lindernia	*anagallidea*	falsepimpernel	LIDAE	LIAN2	LINDUB	VF
Lindernia	*dubia*	falsepimpernel, low	LIDDU	LIDU	LINDUB	VF
Lindernia	*dubia*	pimpernel, false	LIDAE	LIDUA	LINDUB	VF
Lippia	*cuneifolia*	fogfruit, wedgeleaf	LIPCU	LICU	LIPCUN	VF
Lithospermum	*arvense*	gromwell, corn	LITAR	LIAR4	LITARV	VF
Lithospermum	*ruderale*	gromwell, western	LITRU	LIRU4	LITRUD	VF

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Lithospermum	*canescens*	puccoon, hoary	LITCA	LICA12	LITCAN	VF
Lobularia	*maritima*	alyssum, sweet	LOUMA	LOMA	LOBMAR	VF
Lolium	*persicum*	darnel, Persian	LOLPS	LOPE2	LOLPES	VG
Lolium	*multiflorum*	ryegrass, Italian	LOLMU	LOMU	LOLMUL	VG
Lolium	*perenne*	ryegrass, perennial	LOLPE	LOPE	LOLPER	VG
Lolium	*temulentum*	ryegrass, poison	LOLTE	LOTE2	LOLTEM	VG
Lomatium	*bicolor*	biscuitroot	LOMLE	LOBI	LOMBIC	VF
Lomatium	*leptocarpum*	biscuitroot	LOMLE	LOLE2	LOMLEP	VF
Lonicera	*caerulea*	honeysuckle, sweetberry	LONCO	LOCA6	LONCAE	VS
Lonicera	*tatarica*	honeysuckle, Tatarian	LONTA	LOTA	LONTAT	VS
Lonicera	*periclymenum*	woodbine	LONPE	LOPE4	LONPER	VS
Lotus	*corniculatus*	trefoil, birdsfoot	LOTCO	LOCO6	LOTCOR	VF
Ludwigia	*peploides*	primrose, water	LUDPE	LUPE5	LUDPEP	VF
Ludwigia	*palustris*	waterpurslane	LUDPA	LUPA	LUDPAL	VF
Lupinus	*pusillus*	lupine, low	LUPPU	LUPU	LUPPUS	VF
Lupinus	*sericeus*	lupine, silky	LUPSE	LUSE4	LUPSER	VF
Lupinus	*argenteus*	lupine, silver	LUPAR	LUAR3	LUPARG	VF
Lupinus	*caudatus*	lupine, tailcup	LUPCA	LUCA	LUPCAU	VF
Lupinus	*leucophyllus*	lupine, velvet	LUPLE	LULE3	LUPLEU	VF
Luzula	*multiflora*	woodrush, common	LUUMU	LUMU2	LUZCAM	VG
Lychnis	*flos-cuculi*	campion, meadow	LYHFC	LYFL3	LYCFLO	VF
Lychnis	*dioica*	campion, red	MELRU	LYDI5	LYCDIO	VF
Lychnis	*coronaria*	campion, rose	LYHCO	LYCO	LYCCOR	VF
Lychnis	*alba*	campion, white	MELAL	LYAL	LYCALB	VF
Lychnis	*chalcedonica*	maltese-cross	LYHCH	LYCH3	LYCCHA	VF
Lycium	*halimifolium*	matrimonyvine	LYUHA	LYHA	LYCHAL	VS
Lycopsis	*arvensis*	bugloss, small	LYCAR	LYAR	ANCARV	VF
Lycopus	*americanus*	bugleweed, American	LYAAM	LYAM	LYCAME	VF
Lycopus	*asper*	bugleweed, rough	LYAAS	LYAS	LYCASP	VF
Lycopus	*uniflorus*	bugleweed, slender	LYAUN	LYUN	LYCUNI	VF
Lygodesmia	*juncea*	skeletonweed	LYGJU	LYJU	LYGJUN	VF
Lysimachia	*punctata*	loosestrife, dotted	LYSPU	LYPU2	LYSPUN	VF
Lysimachia	*ciliata*	loosestrife, fringed	LYSCI	LYCI	LYSCIL	VF
Lysimachia	*vulgaris*	loosestrife, garden	LYSVU	LYVU	LYSVUL	VF
Lysimachia	*terrestris*	swampcandle	LYSTE	LYTE2	LYSTER	VF
Lythrum	*salicaria*	loosestrife, purple	LYTSA	LYSA2	LYTSAL	VF
Lythrum	*alatum*	loosestrife, winged	LYTAL	LYAL4	LYTALA	VF
Machaeranthera	*tanacetifolia*	daisy, tahoka	MCATA	MATA2	MACTAN	VF
Maclura	*pomifera*	orange, osage	MACPO	MAPO	MACPOM	VT
Madia	*glomerata*	tarweed, cluster	MADGL	MAGL2	MADGLO	VF
Madia	*sativa*	tarweed, coast	MADSA	MASA	MADSAT	VF
Madia	*elegans*	tarweed, showy	MADEL	MAEL	MADELE	VF
Maianthemum	*canadense*	lily-of-the-valley, false	MNHCA	MACA4	MAICAN	VF
Malcolmia	*africana*	stock, Malcolm	MAMAF	MAAF	MALAFR	VF
Malva	*neglecta*	mallow, common	MALNE	MANE	MALNEG	VF
Malva	*rotundifolia*	mallow, common	MALNE	MARO11	MALROT	VF
Malva	*verticillata*	mallow, curled	MALVE	MAVEC	MALVER	VF
Malva	*sylvestris*	mallow, high	MALSI	MASY	MALSYL	VF

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Malva	*parviflora*	mallow, little	MALPA	MAPA5	MALPAR	VF
Malva	*moschata*	mallow, musk	MALMO	MAMO2	MALMOS	VF
Marah	*oreganus*	bigroot	ECNOR	MAOR3	MARORE	VF
Marrubium	*vulgare*	horehound, white	MAQVU	MAVU	MARVUL	VF
Marsilea	*mucronata*	pepperwort, hairy	MASMU	MAMU5	MARVES	VE
Marsilea	*vestita*	pepperwort, hairy	MASMU	MAVE2	MARVES	VE
Matricaria	*inodora*	chamomile, scentless	MATIN	MAIN12	MATMAR	VF
Matricaria	*perforata*	chamomile, scentless	MATIN	MAPE2	MATMAR	VF
Matricaria	*maritima*	chamomile, scentless	MATMA	MAMA10	MATMAR	VF
Matricaria	*chamomilla*	chamomile, wild	MATCH	MACH2	MATCHA	VF
Matricaria	*matricarioides*	pineapple-weed	MATMT	MAMA11	MATMAT	VF
Medicago	*sativa*	alfalfa	MEDSA	MESA	MEDSAT	VF
Medicago	*hispida*	burclover, California	MEDPO	MEHI	MEDHIS	VF
Medicago	*polymorpha*	burclover, California	MEDPO	MEPO3	MEDHIS	VF
Medicago	*lupulina*	medic, black	MEDLU	MELU	MEDLUP	VF
Medicago	*arabica*	medic, spotted	MEDAB	MEAR	MEDARA	VF
Melampyrum	*lineare*	cow-wheat	MEALI	MELI2	MELLIN	VF
Melastoma	*malabathricum*	rhododendron, Indian	MESMA	MEMA	MELMAL	VF
Melilotus	*officinalis*	sweetclover, yellow	MEUOF	MEOF	MELOFF	VF
Melilotus	*indica*		MEUIN	MEIN14	MELINI	VF
Melissa	*officinalis*	balm, lemon	MLSOF	MEOF2	MELOFI	VF
Mentha	*suaveolens*	mint, apple	MENSU	MESU5	MENSUA	VF
Mentha	*arvensis*	mint, field	MENAR	MEAR4	MENARV	VF
Mentha	*rotundifolia*	mint, roundleaved	MENSU	MERO	MENSUA	VF
Mentha	*piperita*	peppermint	MENPI	MEPI	MENXPI	VF
Mentha	*spicata*	spearmint	MENSP	MESP3	MENSPI	VF
Mentzelia	*decapetala*	stickleaf, tenpetal	MNZDE	MEDE2	MENDEC	VF
Mentzelia	*albicaulis*	stickleaf, whitestem	MNZAL	MEAL6	MENALB	VF
Mertensia	*paniculata*	bluebells, northern	MTSPA	MEPA	MERPAN	VF
Mikania	*cordata*	mikania, heart-leaved	MIKCO	MICO16	MIKCOR	VF
Mikania	*micrantha*	mikania, small-leaved	MIKMI	MIMI5	MIKMIC	VF
Milium	*vernale*	grass, spring millet	MLISC	MIVE3	MILVER	VG
Mimosa	*pigra*	mimosa, catclaw	MIMPI	MIPI	MIMPIG	VF
Mimosa	*pigra*	mimosa, slow	MIMPI	MIPI	MIMPIG	VF
Mimosa	*invisa*	mimosa, two-thrush	MIMIN	MIIN80	MIMDIP	VF
Mirabilis	*jalapa*	four o'clock, common	MIBJA	MIJA	MIRJAL	VF
Mirabilis	*nyctaginea*	four o'clock, wild	MIBNY	MINY	MIRNYC	VF
Moehringia	*lateriflora*	sandwort, grove	MGJLA	MOLA6	ARELAT	VF
Mollugo	*verticillata*	carpetweed	MOLVE	MOVE	MOLVER	VF
Monarda	*fistulosa*	bergamot, wild	MOAFI	MOFI	MONFIS	VF
Monochoria	*hastata*	monochoria, arrowleaved	MOOHA	MOHA2	MONHAS	VF
Monochoria	*hastata*	monochoria, sliverleaf	MOOHA	MOHA2	MONHAS	VF
Monochoria	*vaginalis*	pickerel-weed, sheathed	MOOVA	MOVA	MONVAG	VF
Monolepis	*nuttalliana*	povertyweed, Nuttall	MOPNU	MONU	MONNUT	VF
Morus	*rubra*	mulberry, red	MORRU	MORU2	MORRUB	VT
Morus	*alba*	mulberry, white	MORAL	MOAL	MORALB	VT
Muhlenbergia	*asperifolia*	muhly, alkali	MUHAS	MUAS	MUHASP	VG
Muhlenbergia	*frondosa*	muhly, wirestem	MUHFR	MUFR2	MUHFRO	VG

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Appendix 13

Scientific Name				National		
Genus	Species/ Authority	Common Name	Bayer or WSSA ID	Plants NRCS ID	Region 1 USFS ID	Plant Type *
Munroa	*squarrosa*	buffalograss, false	MUOSQ		MUNSQU	VG
Myosotis	*arvensis*	forget-me-not, field	MYOAR	MYAR	MYOARV	VF
Myosotis	*scorpioides*	forget-me-not, true	MYOPA	MYSC	MYOSCO	VF
Myosurus	*minimus*	mousetail	MYSMI	MYMI2	MYOMIN	VF
Myriophyllum	*aquaticum*	parrotfeather	MYPBR	MYAQ2	MYRBRA	VF
Myriophyllum	*brasiliense*	parrotfeather	MYPBR	MYBR	MYRBRA	VF
Myriophyllum	*pinnatum*	watermilfoil, eastern	MYPPI	MYPI	MYRPIN	VF
Myriophyllum	*spicatum*	watermilfoil, Eurasian	MYPSP	MYSP2	MYRSPI	VF
Myriophyllum	*exalbescens*	watermilfoil, northern	MYPSE	MYEX	MYRSPI	VF
Myriophyllum	*heterophyllum*	watermilfoil, variable	MYPHE	MYHE2	MYRHET	VF
Myriophyllum	*verticillatum*	watermilfoil, whorled	MYPVE	MYVE3	MYRSPI	VF
Najas	*marina*	naiad, hollyleaf	NAIMA	NAMA	NAJMAR	VF
Najas	*flexilis*	naiad, slender	NAIFL	NAFL	NAJFLE	VF
Najas	*guadalupensis*	naiad, southern	NAIGU	NAGU	NAJGUA	VF
Nassella	*trichotoma*	nassella, cut hair	STDTR		NASTRI	VG
Nasturtium	*officinale*	watercress	NAAOF	NAOF	NASOFF	VF
Nepeta	*cataria*	catnip	NEPCA	NECA2	NEPCAT	VF
Nepeta	*hederacea*	ivy, ground	GLEHE	NEHE2	GLEHED	VF
Neslia	*paniculata*	mustard, ball	NEAPA	NEPA3	NESPAN	VF
Nicotiana	*glauca*	tabacco, tree	NIOGL	NIGL	NICGLA	VS
Nuphar	*luteum*	spatterdock, Rocky Mountain	NUPLP	NULUP	NUPLUT	VF
Nuphar	*polysepalum*	spatterdock, Rocky Mountain	NUPLP	NUPO2	NUPLUT	VF
Nuphar	*luteum*	waterlily, yellow	NUPLU	NULU	NUPLUT	VF
Nymphaea	*odorata*	waterlily, fragrant	NYMOR	NYOD	NYMODO	VF
Oemleria	*cerasiformis*	plum, Indian	OECE		OEMCER	VS
Oenothera	*biennis*	eveningprimrose, common	OEOBI	OEBI	OENBIE	VF
Oenothera	*laciniata*	eveningprimrose, cutleaf	OEOLA	OELA	OENLAC	VF
Oenothera	*albicaulis*	eveningprimrose, prairie	OEOAL	OEAL	OENALB	VF
Oenothera	*perennis*	sundrops, perennial	OEOPE	OEPE	OENPER	VF
Onoclea	*sensibilis*	fern, sensitive	ONCSE	ONSE	ONOSEN	VE
Onopordum	*acanthium*	thistle, Scotch	ONRAC	ONAC	ONOACA	VF
Opuntia	*fragilis*	pricklypear, brittle	OPUFR	OPFR	OPUFRA	VF
Opuntia	*polyacantha*	pricklypear, plains	OPUPO	OPPO	OPUPOL	VF
Opuntia	*humifusa*	pricklypear, spreading	OPUHU	OPHU	OPUHUM	VF
Origanum	*vulgare*	marjoram, wild	ORIVU	ORVU	ORIVUL	VF
Ornithogalum	*umbellatum*	star-of-Bethlehem	OTGUM	ORUM	ORNUMB	VF
Ornithogalum	*nutans*	star-of-Bethlehem, nodding	OTGNU	ORNU	ORNNUT	VF
Orobanche	*minor*	broomrape, small	ORAMI	ORMI	OROMIN	VF
Osmorhiza	*chilensis*	sweetroot, spreading	OMRCH	OSCH	OSMCHI	VF
Oxalis	*corniculata*	woodsorrel, creeping	OXACO	OXCO	OXACOR	VF
Oxalis	*europaea*	woodsorrel, European	OXAEU	OXEU2	OXADIL	VF
Oxalis	*stricta*	woodsorrel, European	OXAEU	OXST	OXASTR	VF
Oxalis	*dillenii*	woodsorrel, yellow	OXAST	OXDI2	OXADIL	VF
Oxytropis	*lambertii*	crazyweed, Lambert	OXRLA	OXLA3	OXYLAM	VF
Oxytropis	*splendens*	crazyweed, showy	OXRSP	OXSP	OXYSPL	VF
Oxytropis	*sericea*	crazyweed, silky	OXRMA	OXSE	OXYSER	VF
Oxytropis	*sericea*	crazyweed, white point	OXRMA	OXSE	OXYSER	VF
Panicum	*miliaceum*	millet, wild proso	PANMI	PAMI2	PANMIL	VG

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Panicum	*dichotomiflorum*	panicum, fall	PANDI	PADI	PANDIC	VG
Panicum	*lanuginosum*	panicum, woolly	PANLG	PALA18	PANOCC	VG
Panicum	*virgatum*	switchgrass	PANVI	PAVI2	PANVIR	VG
Panicum	*capillare*	witchgrass	PANCA	PACA6	PANCAP	VG
Papaver	*rhoeas*	poppy, corn	PAPRH	PARH2	PAPRHO	VF
Papaver	*dubium*	poppy, doubting	PAPDU	PADU	PAPDUB	VF
Papaver	*dubium*	poppy, field	PAPDU	PADU	PAPDUB	VF
Papaver	*argemone*	poppy, pinnate	PAPAR	PAAR3	PAPARG	VF
Parapholis	*incurva*	sicklegrass, curved	PHOIN	PAIN	PARINC	VG
Parietaria	*pensylvanica*	pellitory, Pennsylvania	PAIPE	PAPE5	PARPEN	VF
Parthenocissus	*quinquefolia*	Virginia-creeper	PRTQU	PAQU2	PARQUI	VS
Paspalum	*dilatatum*	dallisgrass	PASDI	PADI3	PASDIL	VG
Paspalum	*distichum*	knotgrass	PASDS	PADI6	PASDIS	VG
Paspalum	*scrobiculatum*	millet, kodo	PASOR	PASC6	PASSCR	VG
Pastinaca	*sativa*	parsnip, wild	PAVSA	PASA2	PASSAT	VF
Paulownia	*tomentosa*	paulownia, royal	PAZTO	PATO2	PAUTOM	VT
Peganum	*harmala*	rue, African	PEGHA	PEHA	PEGHAR	VF
Pennisetum	*setaceum*	fountaingrass, crimson	PESSA	PESE3	PENSET	VG
Pennisetum	*clandestinum*	grass, kikuyu	PESCL	PECL2	PENCLA	VG
Pennisetum	*pedicellatum*	grass, kyasuma	PESPE	PEPE24	PENPED	VG
Phalaris	*canariensis*	canarygrass	PHACA	PHCA5	PHACAN	VG
Phalaris	*arundinacea*	canarygrass, reed	TYPAR	PHAR3	PHAARU	VG
Phalaris	*minor*	grass, littleseed canary	PHAMI	PHMI3	PHAMIN	VG
Phleum	*pratense*	timothy	PHLPR	PHPR3	PHLPRA	VG
Phragmites	*australis*	reed, common	PHRCO	PHAU7	PHRAUS	VG
Phragmites	*communis*	reed, common	PHRCO	PHCO15	PHRAUS	VG
Phyla	*cuneifolia*	fogfruit, wedgeleaf	LIPCU	PHCU3	LIPCUN	VF
Physalis	*heterophylla*	groundcherry, clammy	PHYHE	PHHE5	PHYHET	VF
Physalis	*longifolia*	groundcherry, longleaf	PHYLF	PHLO4	PHYLON	VF
Physalis	*longifolia*	groundcherry, smooth	PHYSU	PHLOS	PHYLON	VF
Physalis	*subglabrata*	groundcherry, smooth	PHYSU	PHSU8	PHYLON	VF
Physalis	*ixocarpa*	groundcherry, tomatillo	PHYIX	PHIX	PHYIXO	VF
Physalis	*lanceolata*	groundcherry, Virginia	PHYLC	PHLA22	PHYPUM	VF
Physalis	*virginiana*	groundcherry, Virginia	PHYLC	PHVI5	PHYLON	VF
Physalis	*pubescens*		PHYPU	PHPU7	PHYPUB	VF
Phytolacca	*americana*	pokeweed, common	PHTAM	PHAM4	PHYAME	VF
Picea	*glauca*	spruce, white	PIEGA	PIGL	PICGLA	VT
Picris	*hieracioides*	bitterweed	PICHI	PIHI	PICHIE	VF
Picris	*echioides*	oxtongue, bristly	PICEC	PIEC	PICECH	VF
Pilea	*pumila*	clearweed	PILPU	PIPU2	PILPUM	VF
Plantago	*rugelii*	plantain, blackseed	PLARU	PLRU	PLARUG	VF
Plantago	*aristata*	plantain, bracted	PLAAR	PLAR3	PLAARI	VF
Plantago	*major*	plantain, broadleaf	PLAMA	PLMA2	PLAMAJ	VF
Plantago	*lanceolata*	plantain, buckhorn	PLALA	PLLA	PLALAN	VF
Plantago	*elongata*	plantain, slender	PLAPU	PLEL	PLAELO	VF
Plantago	*patagonica*	plantain, woolly	PLAPR	PLPA2	PLAPAT	VF
Plantago	*purshii*	plantain, woolly	PLAPR	PLPU80	PLAPAT	VF
Poa	*annua*	bluegrass, annual	POAAN	POAN	POAANN	VG

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Poa	*bulbosa*	bluegrass, bulbous	POABU	POBU	POABUL	VG
Poa	*compressa*	bluegrass, Canada	POACO	POCO	POACOM	VG
Poa	*pratensis*	bluegrass, Kentucky	POAPR	POPR	POAPRA	VG
Poa	*trivialis*	bluegrass, roughstalk	POATR	POTR2	POATRI	VG
Poa	*nemoralis*	bluegrass, wood	POANE	PONE	POAGLU	VG
Polanisia	*dodecandra*	clammyweed, roughseed	PONGR	PODO3	POLTRA	VF
Polanisia	*graveolens*	clammyweed, roughseed	PONGR	POGR17	POLTRA	VF
Polanisia	*trachysperma*	clammyweed, western	PONTR	POTR13	POLTRA	VF
Polemonium	*micranthum*	polemonium, annual	PMNMI	POMI	POLMIC	VF
Polygonum	*convolvulus*	buckwheat, wild	POLCO	POCO10	POLCON	VF
Polygonum	*ramosissimum*	knotweed, bushy	POLRA	PORA3	POLRAM	VF
Polygonum	*douglasii*	knotweed, Douglas'	POLDO	PODO4	POLDOU	VF
Polygonum	*erectum*	knotweed, erect	POLER	POER2	POLERE	VF
Polygonum	*cuspidatum*	knotweed, Japanese	POLCU	POCU6	POLCUS	VF
Polygonum	*aviculare*	knotweed, prostrate	POLAV	POAV	POLAVI	VF
Polygonum	*sachalinense*	knotweed, sakhalin	REYSA	POSA4	POLSAC	VF
Polygonum	*achoreum*	knotweed, striate	POLAH	POAC3	POLACH	VF
Polygonum	*persicaria*	ladysthumb	POLPE	POPE3	POLPER	VF
Polygonum	*orientale*	princess-feather	POLOR	POOR2	POLORI	VF
Polygonum	*punctatum*	smartweed, dotted	POLPT	POPU5	POLPUN	VF
Polygonum	*scandens*	smartweed, hedge	POLSD	POSC3	POLSCA	VF
Polygonum	*hydropiper*	smartweed, marshpepper	POLHY	POHY	POLHYD	VF
Polygonum	*hydropiperoides*	smartweed, mild	POLHP	POHY2	POLHYR	VF
Polygonum	*lapathifolium*	smartweed, pale	POLLA	POLA4	POLLAP	VF
Polygonum	*pensylvanicum*	smartweed, Pennsylvania	POLPY	POPE2	POLPEN	VF
Polygonum	*amphibium*	smartweed, water	POLAM	POAM8	POLAMP	VF
Polygonum	*natans*	smartweed, water	POLAM	PONA3	POLAMP	VF
Polygonum	*coccineum*	smartweed, water	POLCC	POCO8	POLAMP	VF
Polypogon	*monspeliensis*	polypogon, rabbitfoot	POHMO	POMO5	POLMON	VG
Populus	*tremuloides*	aspen, quaking	POPTM	POTR5	POPTRE	VT
Populus	*balsamifera*	poplar, balsam	POPBA	POBA2	POPBAL	VT
Populus	*alba*	poplar, white	POPAL	POAL7	POPALB	VT
Portulaca	*oleracea*	purslane, common	POROL	POOL	POROLE	VF
Potamogeton	*nodosus*	pondweed, American	PTMNO	PONO2	POTNOD	VF
Potamogeton	*pusillus*	pondweed, baby	PTMPU	POPU7	POTPUS	VF
Potamogeton	*crispus*	pondweed, curlyleaf	PTMCR	POCR3	POTCRI	VF
Potamogeton	*filiformis*	pondweed, fineleaf	PTMFI	POFI2	POTFIL	VF
Potamogeton	*zosteriformis*	pondweed, flatstem	PTMZO	POZO	POTZOS	VF
Potamogeton	*natans*	pondweed, floatingleaf	PTMNA	PONA4	POTNAT	VF
Potamogeton	*friesii*	pondweed, Fries	PTMFR	POFR3	POTFRI	VF
Potamogeton	*illinoensis*	pondweed, Illinois	PTMIL	POIL	POTILL	VF
Potamogeton	*amplifolius*	pondweed, largeleaf	PTMAM	POAM5	POTAMP	VF
Potamogeton	*foliosus*	pondweed, leafy	PTMFO	POFO3	POTFOL	VF
Potamogeton	*epihydrus*	pondweed, ribbonleaf	PTMEP	POEP2	POTEPI	VF
Potamogeton	*pectinatus*	pondweed, sago	PTMPE	POPE6	POTPEC	VF
Potamogeton	*pusillus*	pondweed, small	PTMPU	POPU7	POTPUS	VF
Potamogeton	*gramineus*	pondweed, variable	PTMGR	POGR8	POTGRM	VF
Potamogeton	*diversifolius*	pondweed, waterthread	PTMDF	PODI	POTDIE	VF

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Potamogeton	*praelongus*	pondweed, whitestem	PTMPR	POPR5	POTPRA	VF
Potentilla	*biennis*	cinquefoil, biennial	PTLBN	POBI7	POTBIE	VF
Potentilla	*norvegica*	cinquefoil, rough	PTLNO	PONO3	POTNOR	VF
Potentilla	*anserina*	cinquefoil, silverweed	PTLAN	POAN5	POTANS	VF
Potentilla	*argentea*	cinquefoil, silvery	PTLAG	POAR8	POTARE	VF
Potentilla	*recta*	cinquefoil, sulfur	PTLRC	PORE5	POTREC	VF
Potentilla	*tridentata*	cinquefoil, three toothed	PTLTR	POTR7	POTTRI	VS
Potentilla	*arguta*	cinquefoil, white	PTLAR	POAR7	POTARG	VF
Proboscidea	*louisianica*	devils-claw	PROLO	PRLO	PROLOU	VF
Prosopis	*glandulosa*	mesquite, honey	PRCJG	PRGL2	PROGLA	VS
Prosopis	*velutina*	prosopis, jointed	PRCJV	PRVE	PROVEL	VS
Prosopis	*farcta*	prosopis, stuffed	PRCST	PRFA2	PROFAR	VS
Prunella	*vulgaris*	healall	PRUVU	PRVU	PRUVUL	VF
Prunus	*mahaleb*	cherry, Mahaleb	PRNMH	PRMA	PRUMAH	VT
Prunus	*pensylvanic*a	cherry, pin	PRNPE	PRPE2	PRUPEN	VS
Prunus	*cerasus*	cherry, sour	PRNCE	PRCE	PRUCER	VT
Prunus	*avium*	cherry, sweet	PRNAV	PRAV	PRUAVI	VS
Prunus	*virginiana*	chokecherry, black	PRNVM	PRVIM	PRUVIR	VS
Prunus	*virginiana*	chokecherry, common	PRNVG	PRVI	PRUVIR	VS
Prunus	*persica*	peach	PRNPS	PRPE3	PRUPER	VT
Prunus	*americana*	plum, American	PRNAM	PRAM	PRUAME	VS
Prunus	*domestica*	plum, garden	PRNDO	PRDO	PRUDOM	VS
Psoralea	*lanceolata*	scurfpea, lemon	PSRLA	PSLA	PSOLAN	VF
Pteridium	*aquilinum*	brackenfern	PTEAQ	PTAQ	PTEAQU	VE
Pteridium	*aquilinum*	brackenfern, eastern	PTEAL	PTAQL	PTEAQU	VE
Pylaisiella	*selwynii*		PYSE7		PYLSEL	NM
Pyrola	*rotundifolia*	shinleaf	PYWRO	PYRO	PYRROT	VF
Ranunculus	*orthorhynchus*	buttercup, birdfoot	RANOR	RAOR3	RANORT	VF
Ranunculus	*testiculatus*	buttercup, bur	CCFTE	RATE	RANTES	VF
Ranunculus	*californicus*	buttercup, California	RANCF	RACA2	RANCAL	VF
Ranunculus	*arvensis*	buttercup, corn	RANAR	RAAR3	RANARV	VF
Ranunculus	*repens*	buttercup, creeping	RANRE	RARE3	RANREP	VF
Ranunculus	*sceleratus*	buttercup, crowfoot	RANSC	RASC3	RANSCE	VF
Ranunculus	*occidentalis*	buttercup, field, western	RANOC	RAOC	RANOCC	VF
Ranunculus	*cymbalaria*	buttercup, shore	RANCY	RACY	RANCYM	VF
Ranunculus	*abortivus*	buttercup, smallflower	RANAB	RAAB	RANABO	VF
Ranunculus	*acris*	buttercup, tall	RANAC	RAAC3	RANACR	VF
Ranunculus	*aquatilis*	waterbuttercup, white	RANTR	RAAQC2	RANAQU	VF
Ranunculus	*flabellaris*	waterbuttercup, yellow	RANFB	RAFL	RANFLB	VF
Raphanus	*sativus*	radish	RAPSN	RASA2	RAPSAT	VF
Raphanus	*raphanistrum*	radish, wild	RAPRA	RARA2	RAPRAP	VF
Ratibida	*pinnata*	coneflower, pinnate prairie	RATPI	RAPI	RATPIN	VF
Ratibida	*columnifera*	coneflower, upright prairie	RATCO	RACO3	RATCOL	VF
Reseda	*lutea*	mignonette, yellow	RESLU	RELU	RESLUT	VF
Rhamnus	*cathartica*	buckthorn, European	RHACT	RHCA3	RHACAT	VS
Rhinanthus	*crista-galli*	rattle, yellow	RHIMI	RHCR2	RHICRI	VF
Rhinanthus	*minor*	rattle, yellow	RHIMI	RHMI13	RHICRI	VF
Rhus	*radicans*	ivy, poison	TOXRA	RHRA6	TOXRAD	VS

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Rhus	*diversiloba*	poison-oak, Pacific	RHUDI	RHDI6	RHUDIV	VS
Rhus	*copallina*	sumac, dwarf	RHUCO	RHCO13	RHUCOP	VF
Rhus	*glabra*	sumac, smooth	RHUGL	RHGL	RHUGLA	VS
Rhus	*typhina*	sumac, staghorn	RHUTY	RHTY	RHUTYP	VS
Ribes	*americanum*	currant, American black	RIBAM	RIAM2	RIBAME	VS
Ribes	*aureum*	currant, golden	RIBAU	RIAU	RIBAUR	VS
Ribes	*viscosissimum*	currant, sticky	RIBVS	RIVI3	RIBVIS	VS
Ribes	*cereum*	currant, wax	RIBCE	RICE	RIBCER	VS
Ribes	*hirtellum*	gooseberry, hairystem	RIBHI	RIHI	RIBHIR	VS
Ribes	*cynosbati*	gooseberry, pasture	RIBCY	RICY	RIBCYN	VS
Ribes	*divaricatum*	gooseberry, whitestem	RIBIN	RIDI	RIBDIV	VS
Ribes	*inerme*	gooseberry, whitestem	RIBIN	RIIN2	RIBINE	VS
Ricinus	*communis*	castorbean	RIICO	RICO3	RICCOM	VT
Rorippa	*austriaca*	fieldcress, Austrian	RORAU	ROAU	RORAUS	VF
Rorippa	*sylvestris*	fieldcress, yellow	RORSY	ROSY	RORSYL	VF
Rorippa	*nasturtium-aquaticum*	watercress	NAAOF	RONA2	NASOFF	VF
Rorippa	*islandica*	yellowcress, marsh	RORIS	ROIS2	RORPAL	VF
Rorippa	*sinuata*	yellowcress, spreading	RORSN	ROSI2	RORSIN	VF
Rosa	*canina*	rose, dog	ROSCN	ROCA3	ROSCAN	VS
Rosa	*multiflora*	rose, multiflora	ROSMU	ROMU	ROSMUL	VS
Rosa	*arkansana*	rose, prairie wild	ROSAK	ROAR3	ROSARK	VS
Rosa	*acicularis*	rose, prickly	ROSAC	ROAC	ROSACI	VS
Rosa	*eglanteria*	rose, sweetbriar	ROSRB	ROEG	ROSEGL	VF
Rosa	*rubiginosa*	rose, sweetbriar	ROSRB	RORU82	ROSEGL	VF
Rosa	*virginiana*	rose, Virginia	ROSVI	ROVI2	ROSVIR	VS
Rotala	*ramosior*	toothcup	ROTRA	RORA	ROTRAM	VF
Rottboellia	*exaltata*	grass, itch	ROOEX	ROEX2	ROTEXA	VG
Rottboellia	*cochinchinensis*	grass, Kelly	ROOEX	ROCO6	ROTCOC	VG
Rubus	*laciniatus*	blackberry, cutleaf	RUBLA	RULA	RUBLAC	VS
Rubus	*discolor*	blackberry, Himalaya	RUBDI	RUDI2	RUBDIS	VS
Rubus	*moluccanus*	blackberry, robust	RUBMO	RUMO4	RUBMOL	VS
Rubus	*idaeus*	raspberry, European red	RUBID	RUID	RUBIDA	VS
Rubus	*parviflorus*	thimbleberry, western	RUBPA	RUPA	RUBPAR	VS
Rudbeckia	*hirta*	blackeyed-susan	RUDHP	RUHIP	RUDHIR	VF
Rudbeckia	*serotina*	blackeyed-susan	RUDHP	RUSE5	RUDHIR	VF
Rudbeckia	*laciniata*	coneflower, cutleaf	RUDLA	RULA3	RUDLAC	VF
Rudbeckia	*hirta*	coneflower, hairy	RUDHI	RUHI2	RUDHIR	VF
Rumex	*obtusifolius*	dock, broadleaf	RUMOB	RUOB	RUMOBT	VF
Rumex	*crispus*	dock, curly	RUMCR	RUCR	RUMCRI	VF
Rumex	*domesticus*	dock, longleaf	RUMLO	RUDO	RUMDOM	VF
Rumex	*longifolius*	dock, longleaf	RUMLO	RULO2	RUMDOM	VF
Rumex	*stenophyllus*	dock, narrowleaf	RUMST	RUST4	RUMSTE	VF
Rumex	*altissimus*	dock, pale	RUMAT	RUAL4	RUMALT	VF
Rumex	*patientia*	dock, spinach	RUMPA	RUPA5	RUMPAT	VF
Rumex	*venosus*	dock, veiny	RUMVE	RUVE2	RUMVEN	VF
Rumex	*occidentalis*	dock, western	RUMOC	RUOC3	RUMOCC	VF
Rumex	*acetosa*	sorrel, green	RUMAC	RUAC2	RUMACT	VF
Rumex	*acetosella*	sorrel, red	RUMAA	RUAC3	RUMACE	VF

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Ruppia	*maritima*	widgeongrass	RUPMA	RUMA5	RUPMAR	VF
Saccharum	*spontaneum*	sugarcane, wild	SACSP	SASP	SACSPO	VG
Sagina	*procumbens*	pearlwort, birdseye	SAIPR	SAPR	SAGPRO	VF
Sagittaria	*sagittifolia*	arrowhead	SAGSA	SASA7	SAGSAT	VF
Sagittaria	*latifolia*	arrowhead, common	SAGLT	SALA2	SAGLAT	VF
Sagittaria	*graminea*	arrowhead, slender	SAGGR	SAGR	SAGGRA	VF
Sagittaria	*cuneata*	arrowhead, wedgeleaf	SAGCU	SACU	SAGCUN	VF
Salix	*exigua*	willow, coyote	SAXEX	SAEX	SALEXI	VS
Salix	*fragilis*	willow, crack	SAXFR	SAFR	SALFRA	VT
Salix	*pentandra*	willow, laurel	SAXPE	SAPE4	SALPEN	VS
Salix	*humilis*	willow, prairie	SAXHM	SAHU2	SALHUM	VS
Salix	*interior*	willow, sandbar	SAXIN	SAIN3	SALEXI	VS
Salix	*babylonica*	willow, weeping	SAXBA	SABA2	SALBAB	VT
Salix	*alba*	willow, white	SAXAL	SAAL2	SALALB	VT
Salsola	*kali*	saltwort, spiny	SASKA	SAKA	SALIBE	VF
Salsola	*paulsenii*	thistle, barbwire Russian	SASPA	SAPA8	SALPAU	VF
Salsola	*iberica*	thistle, Russian	SASKR	SAIB	SALIBE	VF
Salsola	*vermiculata*	tumbleweed	SASVE	SAVE6	SALVER	VF
Salvia	*reflexa*	sage, lanceleaf	SALRE	SARE3	SALREF	VF
Salvia	*pratensis*	sage, meadow	SALPR	SAPR2	SALPRA	VS
Salvia	*aethiopis*	sage, Mediterranean	SALAE	SAAE	SALAET	VF
Salvinia	*auriculata*	fern, auricled floating	SAVAU	SAAU	SALAUR	VE
Salvinia	*molesta*	fern, disturbed floating	SAVMO	SAMO5	SALMOL	VE
Sambucus	*canadensis*	elder, American	SAMCN	SACA12	SAMCAN	VS
Sanguisorba	*officinalis*	burnet, great	SANOF	SAOF3	SANOFF	VF
Sanguisorba	*minor*	burnet, salad	SANMI	SAMI3	SANMIN	VF
Saponaria	*officinalis*	bouncingbet	SAWOF	SAOF4	SAPOFF	VF
Sarcobatus	*vermiculatus*	greasewood	SAYVE	SAVE4	SARVER	VS
Satureja	*vulgaris*	basil, wild	STIVU	SAVU	SATVUL	VF
Satureja	*acinos*	thyme, basil	STIAC	SAAC	SATACI	VF
Schedonnardus	*paniculatus*	tumblegrass	SCEPA	SCPA	SCHPAN	VG
Schizachyrium	*scoparium*	bluestem, little	ANOSC	SCSC	ANDSCO	VG
Schrankia	*nuttallii*	sensitivebriar, catclaw	SCNNU	SCNU	SCHNUT	VF
Scirpus	*atrovirens*	bulrush, black	SCPAT	SCAT2	SCIATR	VG
Scirpus	*acutus*	bulrush, hardstem	SCPAC	SCAC	SCIACU	VG
Scirpus	*pendulus*	bulrush, lined	SCPPE	SCPE4	SCIPEN	VG
Scirpus	*fluviatilis*	bulrush, river	SCPFV	SCFL	SCIFLU	VG
Scirpus	*validus*	bulrush, softstem	SCPVA	SCVA	SCIVAL	VG
Scirpus	*cyperinus*	bulrush, woolgrass	SCPCY	SCCY	SCICYP	VG
Scirpus	*americanus*	threesquare, common	SCPAM	SCAM2	SCIAME	VG
Scirpus	*olneyi*	threesquare, Olney	SCPOL	SCOL	SCIAME	VG
Scleranthus	*annuus*	knawel	SCRAN	SCAN2	SCLANN	VF
Sclerochloa	*dura*	hardgrass	SCMDU	SCDU2	SCLDUR	VG
Scutellaria	*galericulata*	skullcap, marsh	SCDGA	SCGA	SCUGAL	VF
Sedum	*acre*	stonecrop, mossy	SEDAC	SEAC	SEDACR	VF
Senecio	*congestus*	fleabane, marsh	SENCG	SECO2	SENCON	VF
Senecio	*vulgaris*	groundsel, common	SENVU	SEVU	SENVUL	VF
Senecio	*plattensis*	groundsel, prairie	SENPN	SEPL	SENPLA	VF

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Senecio	*riddellii*	groundsel, Riddell	SENRI	SERI2	SENRID	VF
Senecio	*sylvaticus*	groundsel, woodland	SENSI	SESY	SENSYL	VF
Senecio	*mikanioides*	ivy, German	SENMI	SEMI	SENMIK	VF
Senecio	*jacobaea*	ragwort, tansy	SENJA	SEJA	SENJAC	VF
Senecio	*viscosus*	ragwort, woodland	SENVI	SEVI2	SENVIS	VF
Setaria	*verticillata*	foxtail, bristly	SETVE	SEVE3	SETVER	VG
Setaria	*viridis*	foxtail, green	SETVI	SEVI4	SETVIR	VG
Setaria	*glauca*	foxtail, yellow	SETLU	SEGL2	SETGLA	VG
Setaria	*lutescens*	foxtail, yellow	SETLU	SELU4	SETGLA	VG
Setaria	*pallide-fusca*	grass, kavatta	SETPF	SEPA82	SETPAL	VG
Setaria	*italica*	millet, foxtail	SETIT	SEIT	SETITA	VG
Shepherdia	*canadensis*	buffaloberry, russet	SHPCA	SHCA	SHECAN	VS
Sherardia	*arvensis*	madder, field	SHRAR	SHAR2	SHEARV	VF
Sicyos	*angulatus*	burcucumber	SIYAN	SIAN	SICANG	VF
Sida	*hederacea*	sida, alkali	SIDHE	SIHE8	SIDHED	VF
Silene	*cucubalus*	campion, bladder	SILVU	SICU6	SILVUL	VF
Silene	*vulgaris*	campion, bladder	SILVU	SIVU	SILVUL	VF
Silene	*dioica*	campion, red	MELRU	SIDI4	SILDIO	VF
Silene	*conoidea*	catchfly, cone	SILCD	SICO4	SILCON	VF
Silene	*armeria*	catchfly, garden	SILAR	SIAR	SILARM	VF
Silene	*dichotoma*	catchfly, hairy	SILDI	SIDI2	SILDIC	VF
Silene	*noctiflora*	catchfly, nightflowering	MELNO	SINO	SILNOC	VF
Silene	*antirrhina*	catchfly, sleepy	SILAN	SIAN2	SILANT	VF
Silene	*alba*	Cochle, White	MELAL	SIAL12	SILLAT	VF
Silphium	*laciniatum*	compassplant	SIPLA	SILA3	SILLAC	VF
Silphium	*perfoliatum*	rosinweed, cup	SIPPE	SIPE2	SILPER	VF
Silybum	*marianum*	milkthistle, blessed	SLYMA	SIMA3	SILMAR	VF
Sinapis	*alba*	mustard, white	SINAL	SIAL5	BRAHIR	VF
Sinapis	*arvensis*	mustard, wild	SINAR	SIAR4	BRAKAB	VF
Sisymbrium	*officinale*	mustard, hedge	SSYOF	SIOF	SISOFF	VF
Sisymbrium	*orientale*	mustard, Oriental	SSYOR	SIOR4	SISORI	VF
Sisymbrium	*loeselii*	mustard, tall hedge	SSYLO	SILO3	SISLOE	VF
Sisymbrium	*altissimum*	mustard, tumble	SSYAL	SIAL2	SISALT	VF
Sisymbrium	*irio*	rocket, London	SSYIR	SIIR	SISIRI	VF
Sisymbrium	*sophia*		DESSO	SISO4	SISSOP	VF
Sisyrinchium	*montanum*	grass, Monanta blueeyed	SISMO	SIMO2	SISMON	VF
Sisyrinchium	*angustifolium*	grass, narrowlead blueeyed	SISBE	SIAN3	SISIDA	VF
Sitanion	*hystrix*	squirreltail	SITHY	SIHY	SITHYS	VG
Sium	*suave*	waterparsnip	SIUSU	SISU2	SIUSUA	VF
Solanum	*rostratum*	buffalobur	SOLCU	SORO	SOLROS	VF
Solanum	*carolinense*	horsenettle	SOLCA	SOCA3	SOLCAR	VF
Solanum	*americanum*	nightshade, American black	SOLAM	SOAM	SOLINT	VF
Solanum	*dulcamara*	nightshade, bittersweet	SOLDU	SODU	SOLDUL	VS
Solanum	*nigrum*	nightshade, black	SOLNI	SONI	SOLNIG	VF
Solanum	*triflorum*	nightshade, cutleaf	SOLTR	SOTR	SOLTRI	VF
Solanum	*ptycanthum*	nightshade, eastern black	SOLPT	SOPT3	SOLNIG	VF
Solanum	*sarrachoides*	nightshade, hairy	SOLSA	SOSA8	SOLSAR	VF
Solanum	*villosum*	nightshade, hairy	SOLSA	SOVI6	SOLSAR	VF

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Solanum	*elaeagnifolium*	nightshade, silverleaf	SOLEL	SOEL	SOLELA	VF
Solanum	*torvum*	turkeyberry	SOLTO	SOTO4	SOLTOR	VF
Solidago	*canadensis*	goldenrod, Canada	SOOCA	SOCA6	SOLCAN	VF
Solidago	*nemoralis*	goldenrod, gray	SOONE	SONE	SOLNEM	VF
Solidago	*missouriensis*	goldenrod, Missouri	SOOMS	SOMI2	SOLMIS	VF
Solidago	*graminifolia*	goldenrod, narrowleaf	SOOGR	SOGR8	SOLGRA	VF
Solidago	*rigida*	goldenrod, rigid	SOORI	SORI2	SOLRIG	VF
Solidago	*altissima*	goldenrod, tall	SOOAL	SOAL6	SOLCAN	VF
Solidago	*canadensis*	goldenrod, tall	SOOAL	SOCAS5	SOLCAN	VF
Solidago	*occidentalis*	goldenrod, western	SOOOC	SOOC4	SOLOCC	VF
Soliva	*pterosperma*	burweed, lawn	SOVPT	SOPT	SOLPTE	VF
Sonchus	*oleraceus*	sowthistle, annual	SONOL	SOOL	SONOLE	VF
Sonchus	*arvensis*	sowthistle, marsh	SONAU	SOARU	SONARV	VF
Sonchus	*uliginosus*	sowthistle, marsh	SONAU	SOUL5	SONARV	VF
Sonchus	*arvensis*	sowthistle, perennial	SONAR	SOAR2	SONARV	VF
Sonchus	*asper*	sowthistle, spiny	SONAS	SOAS	SONASP	VF
Sorbus	*aucuparia*	mountain ash, European	SOUAU	SOAU	SORAUC	VT
Sorghastrum	*nutans*	indiangrass, yellow	SOSNU	SONU2	SORNUT	VG
Sorghum	*almum*	grass, Columbus	SORAL	SOAL	SORALU	VG
Sorghum	*halepense*	johnsongrass	SORHA	SOHA	SORHAL	VG
Sorghum	*bicolor*	shattercane	SORVU	SOBI2	SORBIC	VG
Sorghum	*vulgare*	shattercane	SORVU	SOVU2	SORBIC	VG
Sparganium	*erectum*	burreed, branched	SPGER	SPER	SPAERE	VF
Sparganium	*eurycarpum*	burreed, giant	SPGEU	SPEU	SPAEUR	VF
Sparganium	*chlorocarpum*	burreed, greenfruit	SPGCH	SPCH	SPACHL	VF
Sparganium	*angustifolium*	burreed, narrowleaf	SPGEM	SPAN2	SPAANG	VF
Sparganium	*emersum*	burreed, simplestem	SPGEM	SPEM2	SPAEME	VF
Sparganium	*fluctuans*	burreed, water	SPGFL	SPFL	SPAFLU	VF
Spartina	*pectinata*	cordgrass, prairie	SPTPE	SPPE	SPAPEC	VG
Spartina	*patens*	cordgrass, saltmeadow	SPTPA	SPPA	SPAPAT	VG
Spartina	*alterniflora*	cordgrass, smooth	SPTAL	SPAL	SPAALT	VG
Spartium	*junceum*	broom, Spanish	SPUJU	SPJU2	SPAJUN	VF
Spergula	*arvensis*	spurry, corn	SPRAR	SPAR	SPEARV	VF
Spergularia	*rubra*	sandspurry, red	SPBRU	SPRU	SPERUB	VF
Sphaeralcea	*angustifolia*	globemallow, narrowleaf	SPHAN	SPAN3	SPHANG	VF
Sphaeralcea	*coccinea*	globemallow, scarlet	SPHCO	SPCO	SPHCOC	VF
Sphaerophysa	*salsula*	swainsonpea	SWASA	SPSA3	SPHSAL	VF
Sphenopholis	*obtusata*	wedgescale, prairie	SFPOB	SPOB	SPHOBT	VG
Spirodela	*polyrhiza*	duckweed, giant	SPIPO	SPPO8	SPIPOL	VF
Sporobolus	*neglectus*	dropseed, annual	SPZNE	SPNE2	SPONEG	VG
Sporobolus	*vaginiflorus*	dropseed, poverty	SPZVA	SPVA	SPOVAG	VG
Sporobolus	*cryptandrus*	dropseed, sand	SPZCR	SPCR	SPOCRY	VG
Sporobolus	*airoides*	sacaton, alkali	SPZAI	SPAI	SPOAIR	VG
Stachys	*palustris*	woundwort	STAPA	STPA	STAPAL	VF
Stellaria	*media*	chickweed, common	STEME	STME2	STEMED	VF
Stellaria	*graminea*	starwort, little	STEGR	STGR	STEGRA	VF
Stephanomeria	*tenuifolia*	wirelettuce, slender	STOTE	STTE2	STETEN	VF
Stipa	*comata*	needle-and-thread	STDCO	STCO4	STICOM	VG

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Stipa	*spartea*	porcupinegrass	STDSP	STSP2	STISPA	VG
Stratiotes	*aloides*	soldier, water	STTAL	STAL6	STRALO	VF
Strophostyles	*leiosperma*	wildbean, smoothseed	SRTLE	STLE6	STRLEI	VF
Suaeda	*fruticosa*	seepweed, alkali	SUEFR	SUFR2	SUAMOQ	VF
Suaeda	*occidentalis*	seepweed, western	SUEOC	SUOC	SUAOCC	VF
Swainsona	*salsula*	swainsonpea	SWASA	SWSA2	SPHSAL	VF
Symphoricarpos	*orbiculatus*	currant, Indian	SYPOR	SYOR	SYMORB	VS
Symphoricarpos	*albus*	snowberry, common	SYPAL	SYAL	SYMALB	VS
Symphoricarpos	*occidentalis*	snowberry, western	SYPOC	SYOC	SYMOCC	VS
Symphytum	*officinale*	comfrey, common	SYMOF	SYOF	SYMOFF	VF
Symphytum	*asperum*	comphrey, prickly	SYMAS	SYAS	SYMASP	VF
Taeniatherum	*caput-medusae*	medusahead	ELYCM	TACA8	TAECAP	VG
Tamarix	*gallica*	plant, manna	TAAGA	TAGA	TAMGAL	VS
Tamarix	*ramosissima*	saltcedar	TAARA	TARA	TAMRAM	VS
Tamarix	*chinensis*	tamarisk, Chinese	TAACH	TACH2	TAMCHI	VS
Tamarix	*parviflora*	tamarisk, smallflower	TAAPA	TAPA4	TAMPAR	VS
Tamarix	*odessana*		TAARA		TAMRAM	VS
Tamarix	*pentandra*		TAARA	TAPE	TAMRAM	VS
Tanacetum	*vulgare*	tansy, common	CHYVU	TAVU	TANVUL	VF
Taraxacum	*officinale*	dandelion	TAROF	TAOF	TAROFF	VF
Tetradymia	*glabrata*	horsebrush, littleleaf	TEYGL	TEGL	TETGLA	VS
Tetradymia	*canescens*	horsebrush, spineless	TEYCA	TECA2	TETCAN	VS
Teucrium	*canadense*	germander, American	TEUCA	TECA3	TEUCAN	VF
Thlaspi	*arvense*	pennycress, field	THLAR	THAR5	THLARV	VF
Thlaspi	*perfoliatum*	pennycress, perfoliate	THLPE	THPE	THAPER	VF
Thlaspi	*perfoliatum*	pennycress, thoroughwort	THLPE	THPE	THAPER	VF
Thuidium	*delicatulum*	plume moss, delicate	THDER		THUDEL	NM
Thymus	*serpyllum*	thyme, creeping	THYSE	THSE	THYSER	VF
Torilis	*arvensis*	hedge-parsley, field	TOIAR	TOAR	TORARV	VF
Toxicodendron	*radicans*	ivy, poison	TOXRA	TORA2	TOXRAD	VS
Tragopogon	*porrifolius*	salsify, common	TROPS	TRPO	TRAPOR	VF
Tragopogon	*pratensis*	salsify, meadow	TROPR	TRPR	TRAPRA	VF
Tragopogon	*dubius*	salsify, western	TRODM	TRDU	TRADUB	VF
Tribulus	*terrestris*	puncturevine	TRBTE	TRTE	TRITER	VF
Tridax	*procumbens*	buttons, coat	TRQPR	TRPR5	TRIPRC	VF
Trientalis	*borealis*	star-flower	TNTBO	TRBO2	TRILAI	VF
Trifolium	*incarnatum*	clover, crimson	TRFIN	TRIN3	TRIINC	VF
Trifolium	*agrarium*	clover, hop	TRFAU	TRAG	TRIAGR	VF
Trifolium	*aureum*	clover, hop	TRFAU	TRAU2	TRIAGR	VF
Trifolium	*campestre*	clover, large hop	TRFCA	TRCA5	TRIPRO	VF
Trifolium	*procumbens*	clover, large hop	TRFCA	TRPR7	TRIPRO	VF
Trifolium	*arvense*	clover, rabbitfoot	TRFAR	TRAR4	TRIARV	VF
Trifolium	*pratense*	clover, red	TRFPR	TRPR2	TRIPRA	VF
Trifolium	*dubium*	clover, small hop	TRFDU	TRDU2	TRIDUB	VF
Trifolium	*fragiferum*	clover, strawberry	TRFFR	TRFR2	TRIFRA	VF
Trifolium	*repens*	clover, white	TRFRE	TRRE3	TRIREP	VF
Triodanis	*perfoliata*	venuslookingglass, common	TJDPE	TRPE4	TRIPER	VF
Tussilago	*farfara*	coltsfoot	TUSFA	TUFA	TUSFAR	VF

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Typha	*latifolia*	cattail, common	TYHLA	TYLA	TYPLAT	VF
Typha	*angustifolia*	cattail, narrowleaf	TYHAN	TYAN	TYPANG	VF
Ulex	*europaeus*	gorse	ULEEU	ULEU	ULEEUR	VF
Ulmus	*pumila*	elm, Siberian	ULMPU	ULPU	ULMPUM	VT
Urochloa	*panicoides*	grass, panic liverseed	UROPA	URPA	UROPAN	VG
Urtica	*urens*	nettle, burning	URTUR	URUR	URTURN	VF
Urtica	*dioica*	nettle, stinging	URTDI	URDI	URTDIO	VF
Utricularia	*vulgaris*	bladderwort, common	UTRVU	UTVU	UTRVUL	VF
Utricularia	*inflata*	bladderwort, floating	UTRIN	UTIN	UTRINF	VF
Uvularia	*sessilifolia*	bellwort, little	UVLSE	UVSE	UVUSES	VF
Vaccaria	*pyramidata*	cowcockle	VAAPY	VAPY	VACPYR	VF
Vaccaria	*segetalis*	cowcockle	VAAPY	VASE4	VACPYR	VF
Valeriana	*officinalis*	valerian, common	VALOF	VAOF	VALOFF	VF
Valerianella	*locusta*	cornsalad, common	VLLLO	VALO	VALLOC	VF
Vallisneria	*americana*	eelgrass, American	VAIAM	VAAM3	VALAME	VF
Ventenata	*dubia*	ventenata	VETDU	VEDU	VENDUB	VG
Veratrum	*viride*	hellebore, false green	VEAVI	VEVI	VERVIR	VF
Veratrum	*californicum*	hellebore, false California	VEACA	VECA2	VERCAL	VF
Verbascum	*thapsus*	mullein, common	VESTH	VETH	VERTHA	VF
Verbascum	*blattaria*	mullein, moth	VESBL	VEBL	VERBLA	VF
Verbascum	*virgatum*	mullein, purplestamen	VESVI	VEVI2	VERVIA	VF
Verbascum	*virgatum*	mullein, wand	VESVI	VEVI2	VERVIA	VF
Verbena	*hastata*	vervain, blue	VEBHA	VEHA2	VERHAS	VF
Verbena	*stricta*	vervain, hoary	VEBST	VEST	VERSTR	VF
Verbena	*bracteata*	vervain, prostrate	VEBBR	VEBR	VERBRA	VF
Verbena	*urticifolia*	vervain, white	VEBUR	VEUR	VERURT	VF
Verbesina	*encelioides*	crownbeard	VEEEN	VEEN	VERENC	VF
Veronica	*officinalis*	speedwell, common	VEROF	VEOF2	VEROFF	VF
Veronica	*arvensis*	speedwell, corn	VERAR	VEAR	VERARV	VF
Veronica	*chamaedrys*	speedwell, germander	VERCH	VECH	VERCHA	VF
Veronica	*longifolia*	speedwell, longleaf	VERLO	VELO2	VERLON	VF
Veronica	*persica*	speedwell, Persian	VERPE	VEPE3	VERPES	VF
Veronica	*peregrina*	speedwell, purslane	VERPG	VEPE2	VERPER	VF
Veronica	*peregrina*	speedwell, purslane	VERPX	VEPEX	VERPER	VF
Veronica	*filiformis*	speedwell, slender	VERFI	VEFI	VERFIL	VF
Veronica	*filiformis*	speedwell, thread stalk	VERFI	VEFI	VERFIL	VF
Veronica	*serpyllifolia*	speedwell, thymeleaf	VERSE	VESE	VERSER	VF
Veronica	*anagallis-aquatica*	speedwell, water	VERAA	VEAN2	VERANA	VF
Viburnum	*lentago*	nannyberry	VIBLE	VILE	VIBLEN	VS
Vicia	*cracca*	vetch, bird	VICCR	VICR	VICCRA	VF
Vicia	*sativa*	vetch, common	VICSA	VISA	VICSAT	VF
Vicia	*villosa*	vetch, hairy	VICVI	VIVI	VICVIL	VF
Vicia	*tetrasperma*	vetch, sparrow	VICTE	VITE	VICTET	VF
Vicia	*hirsuta*	vetch, tiny	VICHI	VIHI	VICHIR	VF
Vinca	*major*	periwinkle, big	VINMA	VIMA	VINMAJ	VF
Vinca	*major*	periwinkle, greater	VINMA	VIMA	VINMAJ	VF
Viola	*rafinesquii*	pansy, field	VIORA	VIRA5	VIORAF	VF
Viola	*papilionacea*	violet, common blue	VIOPP	VIPA5	VIOPRT	VF

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Viola	*arvensis*	violet, field	VIOAR	VIAR	VIOARV	VF
Viola	*lanceolata*	violet, lanceleaf	VIOLA	VILA4	VIOLAN	VF
Viola	*odorata*	violet, sweet	VIOOD	VIOD	VIOODO	VF
Vitis	*vulpina*	grape, frost	VITVU	VIVU	VITVUL	VS
Vulpia	*myuros*	fescue, rattail	VLPMY	VUMY	FESMEG	VG
Vulpia	*octoflora*	fescue, sixweeks	FESOC	VUOC	FESOCT	VG
Vulpia	*microstachys*	fescue, small	VLPMI	VUMI	FESMIC	VG
Vulpia	*bromoides*	fescue, squirreltail	VLPBR	VUBR	FESBRO	VG
Wolffia	*columbiana*	watermeal, common	WOLCO	WOCO	WOLCOL	VF
Wolffia	*punctata*	watermeal, spotted	WOLPU	WOPU2	WOLPUN	VF
Xanthium	*strumarium*	cocklebur, common	XANST	XAST	XANSTR	VF
Xanthium	*spinosum*	cocklebur, spiny	XANSP	XASP2	XANSPI	VF
Yucca	*glauca*	yucca, Great Plains	UCCGC	YUGL	YUCGLA	VS
Zannichellia	*palustris*	pondweed, horned	ZAIPA	ZAPA	ZANPAL	VF
Zigadenus	*paniculatus*	deathcamas, foothill	ZIGPA	ZIPA2	ZIGPAN	VF
Zigadenus	*gramineus*	deathcamas, grassy	ZIGGR	ZIGR2	ZIGVEN	VF
Zigadenus	*venenosus*	deathcamas, meadow	ZIGVE	ZIVE	ZIGVEN	VF
Zizania	*aquatica*	wildrice, annual	ZIZAQ	ZIAQ	ZIZAQU	VG
Zosterella	*dubia*	waterstargrass	HETDU	ZODU	ZOSDUB	VF
Zygophyllum	*fabago*	beancaper, Syrian	ZYGFA	ZYFA	ZYGFAB	VF
			Only weeds, approximately 3,000 species	All plants, 21,000 species	All plants, approximately 6,000 species	

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Appendix 13

Common Name	Genus	Species/ Authority	Bayer or WSSA ID	National Plants NRCS ID	Region 1 USFS ID	Plant Type *
adonis, annual	*Adonis*	*annua*	ADOAN	ADAN	ADOANN	VF
adonis, pheasanteye	*Adonis*	*annua*	ADOAN	ADAN	ADOANN	VF
agrimony, roadside	*Agrimonia*	*striata*	AGIST	AGST	AGRSTR	VF
alder, red	*Alnus*	*rubra*	ALURB	ALRU2	ALNRUB	VT
alder, speckled	*Alnus*	*rugosa*	ALURG	ALRU3	ALNINC	VS
alfalfa	*Medicago*	*sativa*	MEDSA	MESA	MEDSAT	VF
alyssum, dwarf	*Alyssum*	*desertorum*	AYSDE	ALDE	ALYDES	VF
alyssum, hoary	*Berteroa*	*incana*	BEFIN	BEIN2	BERINC	VF
alyssum, sweet	*Lobularia*	*maritima*	LOUMA	LOMA	LOBMAR	VF
alyssum, yellow	*Alyssum*	*alyssoides*	AYSAL	ALAL3	ALYALY	VF
amaranth, Palmer	*Amaranthus*	*palmeri*	AMAPA	AMPA	AMAPAL	VF
amaranth, Powell	*Amaranthus*	*powellii*	AMAPO	AMPO2	AMAPOW	VF
amaranth, sandhills	*Amaranthus*	*arenicola*	AMAAR	AMAR	AMAARE	VF
ammannia, purple	*Ammannia*	*coccinea*	AMMCO	AMCO	AMMCOC	VF
anoda, spurred	*Anoda*	*cristata*	ANVCR	SICR2	ANOCRI	VF
arrowhead	*Sagittaria*	*sagittifolia*	SAGSA	SASA7	SAGSAT	VF
arrowhead, common	*Sagittaria*	*latifolia*	SAGLT	SALA2	SAGLAT	VF
arrowhead, slender	*Sagittaria*	*graminea*	SAGGR	SAGR	SAGGRA	VF
arrowhead, wedgeleaf	*Sagittaria*	*cuneata*	SAGCU	SACU	SAGCUN	VF
artichoke, Jerusalem	*Helianthus*	*tuberosus*	HELTU	HETU	HELTUB	VF
aspen, quaking	*Populus*	*tremuloides*	POPTM	POTR5	POPTRE	VT
aster, calico	*Aster*	*lateriflorus*	ASTLF	ASLA6	ASTLAT	VF
aster, heath	*Aster*	*ericoides*	ASTER	ASER3	ASTERI	VF
aster, New England	*Aster*	*novae-angliae*	ASTNA	ASNO	ASTNOV	VF
aster, white heath	*Aster*	*pilosus*	ASTPI	ASPI2	ASTPIL	VF
babysbreath	*Gypsophila*	*paniculata*	GYPPA	GYPA	GYPPAN	VF
baccharis	*Baccharis*	*pilularis*	BACPI	BAPI	BACPIL	VF
balm, lemon	*Melissa*	*officinalis*	MLSOF	MEOF2	MELOFI	VF
baneberry	*Actaea*	*spicata*	AATSR	ACSPR3	ACTRUB	VF
baneberry, red	*Actaea*	*rubra*	AATSR	ACRU2	ACTRUB	VF
barberry, European	*Berberis*	*vulgaris*	BEBVU	BEVU	BERVUL	VS
barberry, Japanese	*Berberis*	*thunbergii*	BEBTH	BETH	BERTHU	VS
barley	*Hordeum*	*vulgare*	HORVX	HOVU	HORVUL	VG
barley, foxtail	*Hordeum*	*jubatum*	HORJU	HOJU	HORJUB	VG
barley, hare	*Hordeum*	*leporinum*	HORLE	HOLE	HORLEP	VG
barley, hare	*Hordeum*	*murinum*	HORLE	HOMU	HORMUR	VG
barley, little	*Hordeum*	*pusillum*	HORPU	HOPU	HORPUS	VG
barley, meadow	*Hordeum*	*brachyantherum*	HORBR	HOBR2	HORBRA	VG
barley, Mediterranean	*Hordeum*	*geniculatum*	HORMG	HOGE	HORGEN	VG
barley, Mediterranean	*Hordeum*	*hystrix*	HORMG	HOHY	HORGEN	VG
barley, mouse	*Hordeum*	*stebbinsii*	HORST	HOST	HORMUR	VG
basil, wild	*Satureja*	*vulgaris*	STIVU	SAVU	SATVUL	VF
bassia, fivehook	*Bassia*	*hyssopifolia*	BAFHY	BAHY	BASHYS	VF
beak, wrinkle duck	*Ischaemum*	*rugosum*	ISCRU	ISRU	ISCRUG	VG
beancaper, Syrian	*Zygophyllum*	*fabago*	ZYGFA	ZYFA	ZYGFAB	VF
bedstraw, catchweed	*Galium*	*aparine*	GALAP	GAAP2	GALAPA	VF
bedstraw, northern	*Galium*	*boreale*	GALBO	GABO2	GALBOR	VF
bedstraw, smooth	*Galium*	*mollugo*	GALMO	GAMO	GALMOL	VF

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Common Name	Genus	Species/ Authority	Bayer or WSSA ID	National Plants NRCS ID	Region 1 USFS ID	Plant Type *
bedstraw, yellow	*Galium*	*verum*	GALVE	GAVE	GALVER	VF
beeplant, Rocky Mountain	*Cleome*	*serrulata*	CLESE	CLSE	CLESER	VF
beggarticks, bur	*Bidens*	*comosa*	BIDTR	BICO3	BIDTRI	VF
beggarticks, bur	*Bidens*	*tripartita*	BIDTR	BITR	BIDTRI	VF
beggarticks, connate	*Bidens*	*connata*	BIDCN	BICO5	BIDTRI	VF
beggarticks, devils	*Bidens*	*frondosa*	BIDFR	BIFR	BIDFRO	VF
beggarticks, hairy	*Bidens*	*pilosa*	BIDPI	BIPI	BIDPIL	VF
beggarticks, nodding	*Bidens*	*cernua*	BIDCE	BICE	BIDCER	VF
beggarticks, tall	*Bidens*	*vulgata*	BIDVU	BIVU	BIDVUL	VF
bellflower, clustered	*Campanula*	*glomerata*	CMPGL	CAGL2	CAMGLO	VF
bellflower, creeping	*Campanula*	*rapunculoides*	CMPRA	CARA	CAMRAP	VF
bellwort, little	*Uvularia*	*sessilifolia*	UVLSE	UVSE	UVUSES	VF
bentgrass, autumn	*Agrostis*	*perennans*	AGSPE	AGPE	AGRPER	VG
bentgrass, colonial	*Agrostis*	*tenuis*	AGSTE	AGTE	AGRTEN	VG
bentgrass, creeping	*Agrostis*	*palustris*	AGSPL	AGPA17	AGRSTO	VG
bentgrass, creeping	*Agrostis*	*stolonifera*	AGSST	AGST2	AGRSTO	VG
bentgrass, winter	*Agrostis*	*hyemalis*	AGSHI	AGHY	AGRHYE	VG
bergamot, wild	*Monarda*	*fistulosa*	MOAFI	MOFI	MONFIS	VF
bermudagrass	*Cynodon*	*dactylon*	CYNDA	CYDA	CYNDAC	VG
bigroot	*Echinocystis*	*oregana*	ECNOR	ECOR3	MARORE	VF
bigroot	*Marah*	*oreganus*	ECNOR	MAOR3	MARORE	VF
bindweed, field	*Convolvulus*	*arvensis*	CONAR	COAR4	CONARV	VF
bindweed, hedge	*Calystegia*	*sepium*	CAGSE	CASE13	CALSEP	VF
bindweed, hedge	*Convolvulus*	*sepium*	CAGSE	COSE14	CALSEP	VF
bindweed, Japanese	*Calystegia*	*pubescens*	CAGHE	CAPU17	CONJAP	VF
bindweed, Japanese	*Convolvulus*	*japonicus*	CAGHE	COJA2	CONJAP	VF
biscuitroot	*Lomatium*	*bicolor*	LOMLE	LOBI	LOMBIC	VF
biscuitroot	*Lomatium*	*leptocarpum*	LOMLE	LOLE2	LOMLEP	VF
bittercress, Pennsylvania	*Cardamine*	*pensylvanica*	CARPE	CAPE3	CARPES	VF
bitterweed	*Picris*	*hieracioides*	PICHI	PIHI	PICHIE	VF
blackberry, cutleaf	*Rubus*	*laciniatus*	RUBLA	RULA	RUBLAC	VS
blackberry, Himalaya	*Rubus*	*discolor*	RUBDI	RUDI2	RUBDIS	VS
blackberry, robust	*Rubus*	*moluccanus*	RUBMO	RUMO4	RUBMOL	VS
blackeyed-susan	*Rudbeckia*	*hirta*	RUDHP	RUHIP	RUDHIR	VF
blackeyed-susan	*Rudbeckia*	*serotina*	RUDHP	RUSE5	RUDHIR	VF
bladderwort, common	*Utricularia*	*vulgaris*	UTRVU	UTVU	UTRVUL	VF
bladderwort, floating	*Utricularia*	*inflata*	UTRIN	UTIN	UTRINF	VF
bluebells, northern	*Mertensia*	*paniculata*	MTSPA	MEPA	MERPAN	VF
bluebuttons	*Knautia*	*arvensis*	KNAAR	KNAR	KNAARV	VF
bluegrass, annual	*Poa*	*annua*	POAAN	POAN	POAANN	VG
bluegrass, bulbous	*Poa*	*bulbosa*	POABU	POBU	POABUL	VG
bluegrass, Canada	*Poa*	*compressa*	POACO	POCO	POACOM	VG
bluegrass, Kentucky	*Poa*	*pratensis*	POAPR	POPR	POAPRA	VG
bluegrass, roughstalk	*Poa*	*trivialis*	POATR	POTR2	POATRI	VG
bluegrass, wood	*Poa*	*nemoralis*	POANE	PONE	POAGLU	VG
bluestem, little	*Andropogon*	*scoparius*	ANOSC		ANDSCO	VG
bluestem, little	*Schizachyrium*	*scoparium*	ANOSC	SCSC	ANDSCO	VG
blueweed	*Echium*	*vulgare*	EHIVU	ECVU	ECHVUL	VF

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blueweed, Texas	*Helianthus*	*ciliaris*	HELCI	HECI	HELCIL	VF
boneset	*Eupatorium*	*perfoliatum*	EUPPE	EUPE3	EUPPER	VF
boneset, false	*Brickellia*	*eupatorioides*	KUHEU	BREU	KUHEUP	VF
boneset, false	*Kuhnia*	*eupatorioides*	KUHEU	KUEU	KUHEUP	VF
borreria, winged	*Borreria*	*alata*	BOILF	BOAL4	BORALA	VF
bouncingbet	*Saponaria*	*officinalis*	SAWOF	SAOF4	SAPOFF	VF
brackenfern	*Pteridium*	*aquilinum*	PTEAQ	PTAQ	PTEAQU	VE
brackenfern, eastern	*Pteridium*	*aquilinum*	PTEAL	PTAQL	PTEAQU	VE
brome, California	*Bromus*	*carinatus*	BROCN	BRCA5	BROCAR	VG
brome, downy	*Bromus*	*tectorum*	BROTE	BRTE	BROTEC	VG
brome, field	*Bromus*	*arvensis*	BROAV	BRAR5	BROARV	VG
brome, foxtail	*Bromus*	*rubens*	BRORU	BRRU2	BRORUB	VG
brome, Japanese	*Bromus*	*japonicus*	BROJA	BRJA	BROJAP	VG
brome, meadow	*Bromus*	*erectus*	BROER	BRER3	BROERE	VG
brome, mountain	*Bromus*	*marginatus*	BROMG	BRMA4	BROCAR	VG
brome, poverty	*Bromus*	*sterilis*	BROST	BRST2	BROSTE	VG
brome, rattlesnake	*Bromus*	*brizaeformis*	BROBR	BRBR7	BROBRI	VG
brome, ripgut	*Bromus*	*rigidus*	BRODI	BRRI8	BRORIG	VG
brome, smooth	*Bromus*	*inermis*	BROIN	BRIN2	BROINE	VG
brome, soft	*Bromus*	*hordeaceus*	BROMO	BRHO2	BROMOL	VG
brome, soft	*Bromus*	*mollis*	BROMO	BRMO2	BROMOL	VG
broom, French	*Cytisus*	*monspessulanus*	TLNMO	CYMO5	CYTMON	VS
broom, scotch	*Cytisus*	*scoparius*	SAOSC	CYSC4	CYTSCO	VS
broom, Spanish	*Spartium*	*junceum*	SPUJU	SPJU2	SPAJUN	VF
broomrape, small	*Orobanche*	*minor*	ORAMI	ORMI	OROMIN	VF
bryony, white	*Bryonia*	*alba*	BYOAL	BRAL4	BRYALB	VF
buckthorn, European	*Rhamnus*	*cathartica*	RHACT	RHCA3	RHACAT	VS
buckwheat, wild	*Polygonum*	*convolvulus*	POLCO	POCO10	POLCON	VF
buffaloberry, russet	*Shepherdia*	*canadensis*	SHPCA	SHCA	SHECAN	VS
buffalobur	*Solanum*	*rostratum*	SOLCU	SORO	SOLROS	VF
buffalograss	*Buchloe*	*dactyloides*	BUCDA	BUDA	BUCDAC	VG
buffalograss, false	*Munroa*	*squarrosa*	MUOSQ		MUNSQU	VG
bugle, carpet	*Ajuga*	*reptans*	AIURE	AJRE	AJUREP	VF
bugleweed, American	*Lycopus*	*americanus*	LYAAM	LYAM	LYCAME	VF
bugleweed, rough	*Lycopus*	*asper*	LYAAS	LYAS	LYCASP	VF
bugleweed, slender	*Lycopus*	*uniflorus*	LYAUN	LYUN	LYCUNI	VF
bugloss, common	*Anchusa*	*officinalis*	ANCOF		ANCOFF	VF
bugloss, Italian	*Anchusa*	*azurea*	ANCIT		ANCAZU	VF
bugloss, Italian	*Anchusa*	*italica*	ANCIT		ANCAZU	VF
bugloss, small	*Anchusa*	*arvensis*	LYCAR	LYAR	ANCARV	VF
bugloss, small	*Lycopsis*	*arvensis*	LYCAR	LYAR	ANCARV	VF
bulrush, black	*Scirpus*	*atrovirens*	SCPAT	SCAT2	SCIATR	VG
bulrush, hardstem	*Scirpus*	*acutus*	SCPAC	SCAC	SCIACU	VG
bulrush, lined	*Scirpus*	*pendulus*	SCPPE	SCPE4	SCIPEN	VG
bulrush, river	*Scirpus*	*fluviatilis*	SCPFV	SCFL	SCIFLU	VG
bulrush, softstem	*Scirpus*	*validus*	SCPVA	SCVA	SCIVAL	VG
bulrush, woolgrass	*Scirpus*	*cyperinus*	SCPCY	SCCY	SCICYP	VG
bunchberry	*Cornus*	*canadensis*	CRWCA	COCA13	CORCAN	VS

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bundleflower, Illinois	*Desmanthus*	*illinoensis*	DEMIL	DEIL	DESILL	VF
burclover, California	*Medicago*	*hispida*	MEDPO	MEHI	MEDHIS	VF
burclover, California	*Medicago*	*polymorpha*	MEDPO	MEPO3	MEDHIS	VF
burcucumber	*Sicyos*	*angulatus*	SIYAN	SIAN	SICANG	VF
burdock, common	*Arctium*	*minus*	ARFMI	ARMI2	ARCMIN	VF
burdock, great	*Arctium*	*lappa*	ARFLA	ARLA3	ARCLAP	VF
burdock, woolly	*Arctium*	*tomentosum*	ARFTO	ARTO	ARCTOM	VF
burnet, great	*Sanguisorba*	*officinalis*	SANOF	SAOF3	SANOFF	VF
burnet, salad	*Sanguisorba*	*minor*	SANMI	SAMI3	SANMIN	VF
burnweed, Australian	*Erechtites*	*minima*	EREPR	ERMI6	EREMIN	VF
burreed, branched	*Sparganium*	*erectum*	SPGER	SPER	SPAERE	VF
burreed, giant	*Sparganium*	*eurycarpum*	SPGEU	SPEU	SPAEUR	VF
burreed, greenfruit	*Sparganium*	*chlorocarpum*	SPGCH	SPCH	SPACHL	VF
burreed, narrowleaf	*Sparganium*	*angustifolium*	SPGEM	SPAN2	SPAANG	VF
burreed, simplestem	*Sparganium*	*emersum*	SPGEM	SPEM2	SPAEME	VF
burreed, water	*Sparganium*	*fluctuans*	SPGFL	SPFL	SPAFLU	VF
bursage, annual	*Ambrosia*	*acanthicarpa*	FRSAC	AMAC2	AMBACA	VF
bursage, annual	*Franseria*	*acanthicarpa*	FRSAC	FRAC2	AMBACA	VF
bursage, perrenial	*Franseria*	*discolor*	FRSTO	FRDI3	AMBTOM	VF
bursage, skeletonleaf	*Ambrosia*	*tomentosa*	FRSTO	AMTO3	AMBTOM	VF
burweed, lawn	*Soliva*	*pterosperma*	SOVPT	SOPT	SOLPTE	VF
buttercup, birdfoot	*Ranunculus*	*orthorhynchus*	RANOR	RAOR3	RANORT	VF
buttercup, bur	*Ranunculus*	*testiculatus*	CCFTE	RATE	RANTES	VF
buttercup, California	*Ranunculus*	*californicus*	RANCF	RACA2	RANCAL	VF
buttercup, corn	*Ranunculus*	*arvensis*	RANAR	RAAR3	RANARV	VF
buttercup, creeping	*Ranunculus*	*repens*	RANRE	RARE3	RANREP	VF
buttercup, crowfoot	*Ranunculus*	*sceleratus*	RANSC	RASC3	RANSCE	VF
buttercup, field, western	*Ranunculus*	*occidentalis*	RANOC	RAOC	RANOCC	VF
buttercup, shore	*Ranunculus*	*cymbalaria*	RANCY	RACY	RANCYM	VF
buttercup, smallflower	*Ranunculus*	*abortivus*	RANAB	RAAB	RANABO	VF
buttercup, tall	*Ranunculus*	*acris*	RANAC	RAAC3	RANACR	VF
buttons, coat	*Tridax*	*procumbens*	TRQPR	TRPR5	TRIPRC	VF
camelthorn	*Alhagi*	*camelorum*	ALHPS	ALCA	ALHCAM	VS
camelthorn	*Alhagi*	*pseudalhagi*	ALHPS	ALPS3	ALHPSE	VF
camphorweed	*Heterotheca*	*subaxillaris*	HTTSU	HESU3	HETSUB	VF
campion, bladder	*Silene*	*cucubalus*	SILVU	SICU6	SILVUL	VF
campion, bladder	*Silene*	*vulgaris*	SILVU	SIVU	SILVUL	VF
campion, meadow	*Lychnis*	*flos-cuculi*	LYHFC	LYFL3	LYCFLO	VF
campion, red	*Lychnis*	*dioica*	MELRU	LYDI5	LYCDIO	VF
campion, red	*Silene*	*dioica*	MELRU	SIDI4	SILDIO	VF
campion, rose	*Lychnis*	*coronaria*	LYHCO	LYCO	LYCCOR	VF
campion, white	*Lychnis*	*alba*	MELAL	LYAL	LYCALB	VF
canarygrass	*Phalaris*	*canariensis*	PHACA	PHCA5	PHACAN	VG
canarygrass, reed	*Phalaris*	*arundinacea*	TYPAR	PHAR3	PHAARU	VG
caraway, common	*Carum*	*carvi*	CRYCA	CACA19	CARCAR	VF
carpetweed	*Mollugo*	*verticillata*	MOLVE	MOVE	MOLVER	VF
carrot, southwestern	*Daucus*	*pusillus*	DAUPU	DAPU3	DAUPUS	VF
carrot, wild	*Daucus*	*carota*	DAUCA	DACA6	DAUCAR	VF

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castorbean	*Ricinus*	*communis*	RIICO	RICO3	RICCOM	VT
catchfly, cone	*Silene*	*conoidea*	SILCD	SICO4	SILCON	VF
catchfly, garden	*Silene*	*armeria*	SILAR	SIAR	SILARM	VF
catchfly, hairy	*Silene*	*dichotoma*	SILDI	SIDI2	SILDIC	VF
catchfly, nightflowering	*Silene*	*noctiflora*	MELNO	SINO	SILNOC	VF
catchfly, sleepy	*Silene*	*antirrhina*	SILAN	SIAN2	SILANT	VF
catchweed	*Asperugo*	*procumbens*	ASGPR	ASPR	ASPPRO	VF
catnip	*Nepeta*	*cataria*	NEPCA	NECA2	NEPCAT	VF
cattail, common	*Typha*	*latifolia*	TYHLA	TYLA	TYPLAT	VF
cattail, narrowleaf	*Typha*	*angustifolia*	TYHAN	TYAN	TYPANG	VF
celandine, greater	*Chelidonium*	*majus*	CHQMA	CHMA2	CHEMAJ	VF
chamomile, corn	*Anthemis*	*arvensis*	ANTAR		ANTARV	VF
chamomile, mayweed	*Anthemis*	*cotula*	ANTCO	MACO22	ANTCOT	VF
chamomile, scentless	*Matricaria*	*inodora*	MATIN	MAIN12	MATMAR	VF
chamomile, scentless	*Matricaria*	*perforata*	MATIN	MAPE2	MATMAR	VF
chamomile, scentless	*Matricaria*	*maritima*	MATMA	MAMA10	MATMAR	VF
chamomile, wild	*Matricaria*	*chamomilla*	MATCH	MACH2	MATCHA	VF
chamomile, yellow	*Anthemis*	*tinctoria*	ANTTI	COTI4	ANTTIN	VF
cheat	*Bromus*	*secalinus*	BROSE	BRSE	BROSEC	VG
cherry, Mahaleb	*Prunus*	*mahaleb*	PRNMH	PRMA	PRUMAH	VT
cherry, pin	*Prunus*	*pensylvanica*	PRNPE	PRPE2	PRUPEN	VS
cherry, sour	*Prunus*	*cerasus*	PRNCE	PRCE	PRUCER	VT
cherry, sweet	*Prunus*	*avium*	PRNAV	PRAV	PRUAVI	VS
chervil	*Anthriscus*	*cerefolium*	ANRCE	CECE3	ANTCER	VF
chess, hairy	*Bromus*	*commutatus*	BROCO	BRCO4	BROCOM	VG
chickweed, common	*Stellaria*	*media*	STEME	STME2	STEMED	VF
chickweed, field	*Cerastium*	*arvense*	CERAR	CEAR4	CERARV	VF
chickweed, mouseear	*Cerastium*	*vulgatum*	CERVU	CEVU	CERVUL	VF
chickweed, nodding	*Cerastium*	*brachypodum*	CERNU	CEBR3	CERNUT	VF
chickweed, nodding	*Cerastium*	*nutans*	CERNU	CENU2	CERNUT	VF
chickweed, sticky	*Cerastium*	*glomeratum*	CERGL	CEGL2	CERVIS	VF
chickweed, sticky	*Cerastium*	*viscosum*	CERGL	CEVI3	CERVIS	VF
chicory	*Cichorium*	*intybus*	CICIN	CIIN	CICINT	VF
chokecherry, black	*Prunus*	*virginiana*	PRNVM	PRVIM	PRUVIR	VS
chokecherry, common	*Prunus*	*virginiana*	PRNVG	PRVI	PRUVIR	VS
chrysanthemum, costmary	*Chrysanthemum*	*balsamita*	CHYBA	CHBA6	CHRBAL	VF
cinquefoil, biennial	*Potentilla*	*biennis*	PTLBN	POBI7	POTBIE	VF
cinquefoil, rough	*Potentilla*	*norvegica*	PTLNO	PONO3	POTNOR	VF
cinquefoil, silverweed	*Potentilla*	*anserina*	PTLAN	POAN5	POTANS	VF
cinquefoil, silvery	*Potentilla*	*argentea*	PTLAG	POAR8	POTARE	VF
cinquefoil, sulfur	*Potentilla*	*recta*	PTLRC	PORE5	POTREC	VF
cinquefoil, three toothed	*Potentilla*	*tridentata*	PTLTR	POTR7	POTTRI	VS
cinquefoil, white	*Potentilla*	*arguta*	PTLAR	POAR7	POTARG	VF
clammyweed, roughseed	*Polanisia*	*dodecandra*	PONGR	PODO3	POLTRA	VF
clammyweed, roughseed	*Polanisia*	*graveolens*	PONGR	POGR17	POLTRA	VF
clammyweed, western	*Polanisia*	*trachysperma*	PONTR	POTR13	POLTRA	VF
clearweed	*Pilea*	*pumila*	PILPU	PIPU2	PILPUM	VF
clover, crimson	*Trifolium*	*incarnatum*	TRFIN	TRIN3	TRIINC	VF

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Appendix 13

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clover, hop	*Trifolium*	*agrarium*	TRFAU	TRAG	TRIAGR	VF
clover, hop	*Trifolium*	*aureum*	TRFAU	TRAU2	TRIAGR	VF
clover, large hop	*Trifolium*	*campestre*	TRFCA	TRCA5	TRIPRO	VF
clover, large hop	*Trifolium*	*procumbens*	TRFCA	TRPR7	TRIPRO	VF
clover, rabbitfoot	*Trifolium*	*arvense*	TRFAR	TRAR4	TRIARV	VF
clover, red	*Trifolium*	*pratense*	TRFPR	TRPR2	TRIPRA	VF
clover, small hop	*Trifolium*	*dubium*	TRFDU	TRDU2	TRIDUB	VF
clover, strawberry	*Trifolium*	*fragiferum*	TRFFR	TRFR2	TRIFRA	VF
clover, white	*Trifolium*	*repens*	TRFRE	TRRE3	TRIREP	VF
Cochle, White	*Silene*	*alba*	MELAL	SIAL12	SILLAT	VF
cockle, corn	*Agrostemma*	*githago*	AGOGI	AGGI	AGRGIT	VF
cocklebur, common	*Xanthium*	*strumarium*	XANST	XAST	XANSTR	VF
cocklebur, spiny	*Xanthium*	*spinosum*	XANSP	XASP2	XANSPI	VF
cohosh, black	*Cimicifuga*	*racemosa*	CIMRA	CIRA	CIMRAC	VF
coltsfoot	*Tussilago*	*farfara*	TUSFA	TUFA	TUSFAR	VF
comfrey, common	*Symphytum*	*officinale*	SYMOF	SYOF	SYMOFF	VF
compassplant	*Silphium*	*laciniatum*	SIPLA	SILA3	SILLAC	VF
comphrey, prickly	*Symphytum*	*asperum*	SYMAS	SYAS	SYMASP	VF
coneflower, cutleaf	*Rudbeckia*	*laciniata*	RUDLA	RULA3	RUDLAC	VF
coneflower, hairy	*Rudbeckia*	*hirta*	RUDHI	RUHI2	RUDHIR	VF
coneflower, pinnate prairie	*Ratibida*	*pinnata*	RATPI	RAPI	RATPIN	VF
coneflower, upright prairie	*Ratibida*	*columnifera*	RATCO	RACO3	RATCOL	VF
coontail	*Ceratophyllum*	*demersum*	CEYDE	CEDE4	CERDEM	VF
copperleaf, dwarf	*Alternanthera*	*sessilis*	ALRSE	ALSE4	ALTSES	VF
copperleaf, rhombic	*Acalypha*	*rhomboidea*	ACCRH	ACRH	ACARHO	VF
copperleaf, Virginia	*Acalypha*	*virginica*	ACCVI	ACVI	ACAVIR	VF
cordgrass, prairie	*Spartina*	*pectinata*	SPTPE	SPPE	SPAPEC	VG
cordgrass, saltmeadow	*Spartina*	*patens*	SPTPA	SPPA	SPAPAT	VG
cordgrass, smooth	*Spartina*	*alterniflora*	SPTAL	SPAL	SPAALT	VG
coreopsis, plains	*Coreopsis*	*tinctoria*	CRLTI	COTI3	CORTIN	VF
coriander	*Coriandrum*	*sativum*	CORSA	COSA	CORSAT	VF
cornflower	*Centaurea*	*cyanus*	CENCY	CECY2	CENCYA	VF
cornsalad, common	*Valerianella*	*locusta*	VLLLO	VALO	VALLOC	VF
corydalis, golden	*Corydalis*	*aurea*	COYAU	COAU2	CORAUR	VF
corydalis, pale	*Corydalis*	*sempervirens*	COYSE	COSE5	CORSEM	VF
cowcockle	*Vaccaria*	*pyramidata*	VAAPY	VAPY	VACPYR	VF
cowcockle	*Vaccaria*	*segetalis*	VAAPY	VASE4	VACPYR	VF
cow-wheat	*Melampyrum*	*lineare*	MEALI	MELI2	MELLIN	VF
crabgrass, ladder	*Digitaria*	*scalarum*	DIGSC	DISC5	DIGSCA	VG
crabgrass, large	*Digitaria*	*sanguinalis*	DIGSA	DISA	DIGSAN	VG
crabgrass, smooth	*Digitaria*	*ischaemum*	DIGIS	DIIS	DIGISC	VG
crabgrass, velvety	*Digitaria*	*velutina*	DIGVE	DIVE2	DIGVEL	VG
crazyweed, Lambert	*Oxytropis*	*lambertii*	OXRLA	OXLA3	OXYLAM	VF
crazyweed, showy	*Oxytropis*	*splendens*	OXRSP	OXSP	OXYSPL	VF
crazyweed, silky	*Oxytropis*	*sericea*	OXRMA	OXSE	OXYSER	VF
crazyweed, white point	*Oxytropis*	*sericea*	OXRMA	OXSE	OXYSER	VF
creosotebush	*Larrea*	*tridentata*	LARTR	LATR2	LARTRI	VS
cress, garden	*Lepidium*	*sativum*	LEPSA	LESA2	LEPSAT	VF

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cress, hoary	*Cardaria*	*draba*	CADDR	CADR	CARDRA	VF
cress, mouseear	*Arabidopsis*	*thaliana*	ARBTH	ARTH	ARATHA	VF
croton, Texas	*Croton*	*texensis*	CVNTE	CRTE4	CROTEX	VF
croton, woolly	*Croton*	*capitatus*	CVNCP	CRCA6	CROCAP	VF
crownbeard	*Verbesina*	*encelioides*	VEEEN	VEEN	VERENC	VF
crownvetch, trailing	*Coronilla*	*varia*	CZRVA	COVA2	CORVAR	VF
crupina, common	*Crupina*	*vulgaris*	CJNVU	CRVU2	CRUVUL	VF
cucumber, wild	*Echinocystis*	*lobata*	ECNLO	ECLO	ECHLOB	VF
cudweed, clammy	*Gnaphalium*	*macounii*	GNAMA	GNMA	GNAVIS	VF
cudweed, clammy	*Gnaphalium*	*viscosum*	GNAMA	GNVI	GNAVIS	VF
cudweed, cottonbatting	*Gnaphalium*	*chilense*	GNACH	GNCH	GNACHI	VF
cudweed, low	*Gnaphalium*	*uliginosum*	GNAUL	GNUL	GNAULI	VF
cudweed, purple	*Gnaphalium*	*purpureum*	GNAPU	GNPU2	GNAPUR	VF
cupgrass, southwestern	*Eriochloa*	*gracilis*	ERBGR	ERGR4	ERIGRA	VG
currant, American black	*Ribes*	*americanum*	RIBAM	RIAM2	RIBAME	VS
currant, golden	*Ribes*	*aureum*	RIBAU	RIAU	RIBAUR	VS
currant, Indian	*Symphoricarpos*	*orbiculatus*	SYPOR	SYOR	SYMORB	VS
currant, sticky	*Ribes*	*viscosissimum*	RIBVS	RIVI3	RIBVIS	VS
currant, wax	*Ribes*	*cereum*	RIBCE	RICE	RIBCER	VS
cutgrass, rice	*Leersia*	*oryzoides*	LEROR	LEOR	LEEORY	VG
daisy, English	*Bellis*	*perennis*	BELPE	BEPE2	BELPER	VF
daisy, oxeye	*Chrysanthemum*	*leucanthemum*	CHYLE	CHLE80	CHRLEU	VF
daisy, tahoka	*Machaeranthera*	*tanacetifolia*	MCATA	MATA2	MACTAN	VF
dallisgrass	*Paspalum*	*dilatatum*	PASDI	PADI3	PASDIL	VG
damesrocket	*Hesperis*	*matronalis*	HEVMA	HEMA3	HESMAT	VF
dandelion	*Taraxacum*	*officinale*	TAROF	TAOF	TAROFF	VF
daphne, February	*Daphne*	*mezereum*	DAPME	DAME3	DAPMEZ	VS
darnel, Persian	*Lolium*	*persicum*	LOLPS	LOPE2	LOLPES	VG
datura, sacred	*Datura*	*meteloides*	DATIN	DAME2	DATINO	VF
dayflower, Asiatic	*Commelina*	*communis*	COMCO	COCO3	COMCOM	VF
daylily, tawny	*Hemerocallis*	*fulva*	HEGFU	HEFU	HEMFUL	VF
deadnettle, purple	*Lamium*	*purpureum*	LAMPU	LAPU2	LAMPUR	VF
deadnettle, spotted	*Lamium*	*maculatum*	LAMMA	LAMA	LAMMAC	VF
deathcamas, foothill	*Zigadenus*	*paniculatus*	ZIGPA	ZIPA2	ZIGPAN	VF
deathcamas, grassy	*Zigadenus*	*gramineus*	ZIGGR	ZIGR2	ZIGVEN	VF
deathcamas, meadow	*Zigadenus*	*venenosus*	ZIGVE	ZIVE	ZIGVEN	VF
devils-claw	*Proboscidea*	*louisianica*	PROLO	PRLO	PROLOU	VF
dill	*Anethum*	*graveolens*	AFEGR		ANEGRA	VF
dock, broadleaf	*Rumex*	*obtusifolius*	RUMOB	RUOB	RUMOBT	VF
dock, curly	*Rumex*	*crispus*	RUMCR	RUCR	RUMCRI	VF
dock, longleaf	*Rumex*	*domesticus*	RUMLO	RUDO	RUMDOM	VF
dock, longleaf	*Rumex*	*longifolius*	RUMLO	RULO2	RUMDOM	VF
dock, narrowleaf	*Rumex*	*stenophyllus*	RUMST	RUST4	RUMSTE	VF
dock, pale	*Rumex*	*altissimus*	RUMAT	RUAL4	RUMALT	VF
dock, southern	*Emex*	*australis*	EMEAU	EMAU	EMEAUS	VF
dock, spinach	*Rumex*	*patientia*	RUMPA	RUPA5	RUMPAT	VF
dock, spined	*Emex*	*spinosa*	EMESP	EMSP	EMESPI	VS
dock, veiny	*Rumex*	*venosus*	RUMVE	RUVE2	RUMVEN	VF

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dock, western	*Rumex*	*occidentalis*	RUMOC	RUOC3	RUMOCC	VF
dodder, clover	*Cuscuta*	*epithymum*	CVCEY	CUEP	CUSEPI	VF
dodder, field	*Cuscuta*	*campestris*	CVCCA	CUCA2	CUSPEN	VF
dodder, largefruit	*Cuscuta*	*umbrosa*	CVCUB	CUUM2	CUSGRO	VF
dodder, largeseed	*Cuscuta*	*indecora*	CVCIN	CUIN	CUSIND	VF
dodder, lespedeza	*Cuscuta*	*pentagona*	CVCPE	CUPE3	CUSPEN	VF
dodder, polygonum	*Cuscuta*	*polygonorum*	CVCPO	CUPO	CUSPOL	VF
dodder, smallseed	*Cuscuta*	*planiflora*	CVCPL	CUPL2	CUSPLA	VF
dodder, swamp	*Cuscuta*	*gronovii*	CVCGR	CUGR	CUSGRO	VF
dogbane, hemp	*Apocynum*	*cannabinum*	APCCA	APCA	APOCAN	VF
dogbane, prairie	*Apocynum*	*sibiricum*	APCVE	APSI	APOSIB	VF
dogbane, spreading	*Apocynum*	*androsaemifolium*	APCAN	APAN2	APOAND	VF
dogtailgrass, crested	*Cynosurus*	*cristatus*	CYXCR	CYCR	CYNCRI	VG
dogtailgrass, hedgehog	*Cynosurus*	*echinatus*	CYXEC	CYEC	CYNECH	VG
dragonhead, American	*Dracocephalum*	*parviflorum*	DRAPA	DRPA2	DRAPAR	VF
dropseed, annual	*Sporobolus*	*neglectus*	SPZNE	SPNE2	SPONEG	VG
dropseed, poverty	*Sporobolus*	*vaginiflorus*	SPZVA	SPVA	SPOVAG	VG
dropseed, sand	*Sporobolus*	*cryptandrus*	SPZCR	SPCR	SPOCRY	VG
dropwort	*Filipendula*	*hexapetala*	FIIVU	FIHE2	FILVUL	VF
dropwort	*Filipendula*	*vulgaris*	FIIVU	FIVU	FILVUL	VF
drymaria, sandy	*Drymaria*	*arenarioides*	DRYAR	DRAR7	DRYARE	VF
duckmeal	*Lemna*	*perpusilla*	LEMPA	LEPE	LEMPER	VF
duckweed, common	*Lemna*	*minor*	LEMMI	LEMI3	LEMMIN	VF
duckweed, giant	*Spirodela*	*polyrhiza*	SPIPO	SPPO8	SPIPOL	VF
duckweed, star	*Lemna*	*trisulca*	LEMTR	LETR	LEMTRI	VF
echinacea, pale	*Echinacea*	*pallida*	ECEPA	ECPA	ECHANG	VF
eelgrass, American	*Vallisneria*	*americana*	VAIAM	VAAM3	VALAME	VF
elder, American	*Sambucus*	*canadensis*	SAMCN	SACA12	SAMCAN	VS
elm, Siberian	*Ulmus*	*pumila*	ULMPU	ULPU	ULMPUM	VT
elodea, Brazillian	*Anacharis*	*densa*	ELDDE		EGEDEN	VF
elodea, Brazillian	*Egeria*	*densa*	ELDDE	EGDE	EGEDEN	VF
elodea, Brazillian	*Elodea*	*densa*	ELDDE	ELDE3	EGEDEN	VF
elodea, common	*Elodea*	*canadensis*	ELDCA	ELCA7	ELOCAN	VF
elodea, western	*Elodea*	*nuttallii*	ELDNU	ELNU2	ELONUT	VF
eveningprimrose, common	*Oenothera*	*biennis*	OEOBI	OEBI	OENBIE	VF
eveningprimrose, cutleaf	*Oenothera*	*laciniata*	OEOLA	OELA	OENLAC	VF
eveningprimrose, prairie	*Oenothera*	*albicaulis*	OEOAL	OEAL	OENALB	VF
everlasting, pearly	*Anaphalis*	*margaritacea*	ANPMA	GNMA2	ANAMAR	VF
falseflax, largeseed	*Camelina*	*sativa*	CMASA	CASA2	CAMSAT	VF
falsepimpernel	*Lindernia*	*anagallidea*	LIDAE	LIAN2	LINDUB	VF
falsepimpernel, low	*Lindernia*	*dubia*	LIDDU	LIDU	LINDUB	VF
fennel	*Foeniculum*	*vulgare*	FOEVU	FOVU	FOEVUL	VF
fern, auricled floating	*Salvinia*	*auriculata*	SAVAU	SAAU	SALAUR	VE
fern, disturbed floating	*Salvinia*	*molesta*	SAVMO	SAMO5	SALMOL	VE
fern, sensitive	*Onoclea*	*sensibilis*	ONCSE	ONSE	ONOSEN	VE
fescue, foxtail	*Festuca*	*megalura*	FESME	FEME	FESMEG	VG
fescue, meadow	*Festuca*	*elatior*	FESPR	FEEL	FESPRA	VG
fescue, meadow	*Festuca*	*pratensis*	FESPR	FEPR	FESPRA	VG

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fescue, rattail	*Festuca*	*myuros*	VLPMY	FEMY2	FESMYU	VG
fescue, rattail	*Vulpia*	*myuros*	VLPMY	VUMY	FESMEG	VG
fescue, red	*Festuca*	*rubra*	FESRU	FERU2	FESRUB	VG
fescue, sheep	*Festuca*	*ovina*	FESOV	FEOV	FESOVI	VG
fescue, sixweeks	*Festuca*	*octoflora*	FESOC	FEOC3	FESOCT	VG
fescue, sixweeks	*Vulpia*	*octoflora*	FESOC	VUOC	FESOCT	VG
fescue, small	*Festuca*	*microstachys*	VLPMI	FEMI2	FESMIC	VG
fescue, small	*Vulpia*	*microstachys*	VLPMI	VUMI	FESMIC	VG
fescue, squirreltail	*Vulpia*	*bromoides*	VLPBR	VUBR	FESBRO	VG
fescue, tall	*Festuca*	*arundinacea*	FESAR	FEAR3	FESARU	VG
feverfew	*Chrysanthemum*	*parthenium*	CHYPA	CHPA33	CHRPAR	VF
fiddle-grass	*Epilobium*	*hirsutum*	EPIHI	EPHI	EPIHIR	VF
fiddleneck, coast	*Amsinckia*	*intermedia*	AMSIN	AMIN3	AMSINT	VF
fiddleneck, tarweed	*Amsinckia*	*lycopsoides*	AMSLY	AMLY	AMSLYC	VF
fiddleneck, western	*Amsinckia*	*tessellata*	AMSTE	AMTE3	AMSTES	VF
fieldcress, Austrian	*Rorippa*	*austriaca*	RORAU	ROAU	RORAUS	VF
fieldcress, yellow	*Rorippa*	*sylvestris*	RORSY	ROSY	RORSYL	VF
filaree, redstem	*Erodium*	*cicutarium*	EROCI	ERCI6	EROCIC	VF
filaree, whitestem	*Erodium*	*moschatum*	EROMO	ERMO7	EROMOS	VF
fingergrass, feather	*Chloris*	*virgata*	CHRVI	CHVI4	CHLVIR	VG
fireweed	*Epilobium*	*angustifolium*	CHAAN	EPAN2	EPIANG	VF
flatsedge	*Cyperus*	*odoratus*	CYPFE	CYOD	CYPODO	VG
flatsedge, redroot	*Cyperus*	*erythrorhizos*	CYPET	CYER2	CYPERY	VG
flax, false smallseed	*Camelina*	*microcarpa*	CMAMI	CAMI2	CAMMIC	VF
fleabane, annual	*Erigeron*	*annuus*	ERIAN	ERAN	ERIANS	VF
fleabane, dwarf	*Conyza*	*ramosissima*	ERIDI	CORA4	CONRAM	VF
fleabane, dwarf	*Erigeron*	*divaricatus*	ERIDI	ERDI12	CONRAM	VF
fleabane, hairy	*Conyza*	*bonariensis*	ERIBO	COBO	CONBON	VF
fleabane, marsh	*Senecio*	*congestus*	SENCG	SECO2	SENCON	VF
fleabane, Oregon	*Erigeron*	*speciosus*	ERISP	ERSP4	ERISPE	VF
fleabane, Philadelphia	*Erigeron*	*philadelphicus*	ERIPH	ERPH	ERIPHI	VF
fleabane, rough	*Erigeron*	*strigosus*	ERIST	ERST3	ERISTR	VF
flixweed	*Descurainia*	*sophia*	DESSO	DESO2	DESSOP	VF
fluvellin, sharppoint	*Kickxia*	*elatine*	KICEL	KIEL	KICELA	VF
fogfruit, wedgeleaf	*Lippia*	*cuneifolia*	LIPCU	LICU	LIPCUN	VF
fogfruit, wedgeleaf	*Phyla*	*cuneifolia*	LIPCU	PHCU3	LIPCUN	VF
forget-me-not, field	*Myosotis*	*arvensis*	MYOAR	MYAR	MYOARV	VF
forget-me-not, true	*Myosotis*	*scorpioides*	MYOPA	MYSC	MYOSCO	VF
fountaingrass, crimson	*Pennisetum*	*setaceum*	PESSA	PESE3	PENSET	VG
four o'clock, common	*Mirabilis*	*jalapa*	MIBJA	MIJA	MIRJAL	VF
four o'clock, wild	*Mirabilis*	*nyctaginea*	MIBNY	MINY	MIRNYC	VF
foxglove	*Digitalis*	*purpurea*	DIKPU	DIPU	DIGPUR	VF
foxtail, bristly	*Setaria*	*verticillata*	SETVE	SEVE3	SETVER	VG
foxtail, Carolina	*Alopecurus*	*carolinianus*	ALOCA	ALCA4	ALOCAR	VG
foxtail, green	*Setaria*	*viridis*	SETVI	SEVI4	SETVIR	VG
foxtail, meadow	*Alopecurus*	*pratensis*	ALOPR	ALPR3	ALOPRA	VG
foxtail, water	*Alopecurus*	*geniculatus*	ALOGE	ALGE2	ALOGEN	VG
foxtail, yellow	*Setaria*	*glauca*	SETLU	SEGL2	SETGLA	VG

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foxtail, yellow	*Setaria*	*lutescens*	SETLU	SELU4	SETGLA	VG
fumitory	*Fumaria*	*officinalis*	FUMOF	FUOF	FUMOFF	VF
gaillardia, rosering	*Gaillardia*	*pulchella*	GAIPU	GAPU	GAIPUL	VF
galinsoga, hairy	*Galinsoga*	*ciliata*	GASCI	GACI4	GALQUA	VF
galinsoga, smallflower	*Galinsoga*	*parviflora*	GASPA	GAPA2	GALPAR	VF
gaura, scarlet	*Gaura*	*coccinea*	GAACO	GACO5	GAUCOC	VF
gayfeather, dotted	*Liatris*	*punctata*	LTSPU	LIPU	LIAPUN	VF
geranium, Carolina	*Geranium*	*carolinianum*	GERCA	GECA5	GERCAR	VF
geranium, cutleaf	*Geranium*	*dissectum*	GERDI	GEDI	GERDIS	VF
geranium, dovefoot	*Geranium*	*molle*	GERMO	GEMO	GERMOL	VF
geranium, smallflower	*Geranium*	*pusillum*	GERPU	GEPU2	GERPUS	VF
germander, American	*Teucrium*	*canadense*	TEUCA	TECA3	TEUCAN	VF
gherkin, west Indian	*Cucumis*	*anguria*	CUMAN	CUAN	CUCANG	VF
globemallow, narrowleaf	*Sphaeralcea*	*angustifolia*	SPHAN	SPAN3	SPHANG	VF
globemallow, scarlet	*Sphaeralcea*	*coccinea*	SPHCO	SPCO	SPHCOC	VF
globethistle, great	*Echinops*	*sphaerocephalus*	ECPSP	ECSP	ECHSPH	VF
goatgrass, barb	*Aegilops*	*triuncialis*	AEGTR	AETR	AEGTRI	VG
goatgrass, jointed	*Aegilops*	*cylindrica*	AEGCY	AECY	AEGCYL	VG
goatsrue	*Galega*	*officinalis*	GAGOF	GAOF	GALOFF	VF
goldbeard, small needled	*Chrysopogon*	*aciculatus*	CYSAC	CHAC	CHRACI	VG
goldenrod, Canada	*Solidago*	*canadensis*	SOOCA	SOCA6	SOLCAN	VF
goldenrod, gray	*Solidago*	*nemoralis*	SOONE	SONE	SOLNEM	VF
goldenrod, Missouri	*Solidago*	*missouriensis*	SOOMS	SOMI2	SOLMIS	VF
goldenrod, narrowleaf	*Euthamia*	*graminifolia*	SOOGR	EUGR5	SOLGRA	VF
goldenrod, narrowleaf	*Solidago*	*graminifolia*	SOOGR	SOGR8	SOLGRA	VF
goldenrod, rigid	*Solidago*	*rigida*	SOORI	SORI2	SOLRIG	VF
goldenrod, tall	*Solidago*	*altissima*	SOOAL	SOAL6	SOLCAN	VF
goldenrod, tall	*Solidago*	*canadensis*	SOOAL	SOCAS5	SOLCAN	VF
goldenrod, western	*Euthamia*	*occidentalis*	SOOOC	EUOC4	SOLOCC	VF
goldenrod, western	*Solidago*	*occidentalis*	SOOOC	SOOC4	SOLOCC	VF
gooseberry, hairystem	*Ribes*	*hirtellum*	RIBHI	RIHI	RIBHIR	VS
gooseberry, pasture	*Ribes*	*cynosbati*	RIBCY	RICY	RIBCYN	VS
gooseberry, whitestem	*Ribes*	*divaricatum*	RIBIN	RIDI	RIBDIV	VS
gooseberry, whitestem	*Ribes*	*inerme*	RIBIN	RIIN2	RIBINE	VS
goosefoot, blite	*Chenopodium*	*capitatum*	CHECA	CHCA4	CHECAP	VF
goosefoot, Jerusalem oak	*Chenopodium*	*botrys*	CHEBO	CHBO2	CHEBOT	VF
goosefoot, maple leaf	*Chenopodium*	*gigantospermum*	CHEHQ	CHGI2	CHEGIG	VF
goosefoot, mealy	*Chenopodium*	*incanum*	CHEIN	CHIN2	CHEFRE	VF
goosefoot, nettle leaf	*Chenopodium*	*murale*	CHEMU	CHMU2	CHEMUR	VF
goosefoot, oakleaf	*Chenopodium*	*glaucum*	CHEGL	CHGL3	CHEGLA	VF
goosefoot, red	*Chenopodium*	*rubrum*	CHERU	CHRU	CHERUB	VF
goosegrass	*Eleusine*	*indica*	ELEIN	ELIN3	ELEIND	VG
gorse	*Ulex*	*europaeus*	ULEEU	ULEU	ULEEUR	VF
goutweed, bishop's	*Aegopodium*	*podagraria*	AEOPO	AEPO	AEGPOD	VF
grama, sixweeks	*Bouteloua*	*barbata*	BOBBA	BOBA2	BOUBAR	VG
grape, frost	*Vitis*	*vulpina*	VITVU	VIVU	VITVUL	VS
grass, Columbus	*Sorghum*	*almum*	SORAL	SOAL	SORALU	VG
grass, itch	*Rottboellia*	*exaltata*	ROOEX	ROEX2	ROTEXA	VG

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grass, kavatta	*Setaria*	*pallide-fusca*	SETPF	SEPA82	SETPAL	VG
grass, Kelly	*Rottboellia*	*cochinchinensis*	ROOEX	ROCO6	ROTCOC	VG
grass, kikuyu	*Pennisetum*	*clandestinum*	PESCL	PECL2	PENCLA	VG
grass, kyasuma	*Pennisetum*	*pedicellatum*	PESPE	PEPE24	PENPED	VG
grass, littleseed canary	*Phalaris*	*minor*	PHAMI	PHMI3	PHAMIN	VG
grass, Monanta blueeyed	*Sisyrinchium*	*montanum*	SISMO	SIMO2	SISMON	VF
grass, narrowlead blueeyed	*Sisyrinchium*	*angustifolium*	SISBE	SIAN3	SISIDA	VF
grass, panic liverseed	*Urochloa*	*panicoides*	UROPA	URPA	UROPAN	VG
grass, small barnyard	*Echinochloa*	*colona*	ECHCO	ECCO2	ECHCOL	VG
grass, spring millet	*Milium*	*vernale*	MLISC	MIVE3	MILVER	VG
grass, Triple-awned	*Aristida*	*oligantha*	ARKOL	AROL	ARIOLI	VG
greasewood	*Sarcobatus*	*vermiculatus*	SAYVE	SAVE4	SARVER	VS
gromwell, corn	*Buglossoides*	*arvense*	LITAR	BUAR3	LITARV	VF
gromwell, corn	*Lithospermum*	*arvense*	LITAR	LIAR4	LITARV	VF
gromwell, western	*Lithospermum*	*ruderale*	LITRU	LIRU4	LITRUD	VF
groundcherry, clammy	*Physalis*	*heterophylla*	PHYHE	PHHE5	PHYHET	VF
groundcherry, longleaf	*Physalis*	*longifolia*	PHYLF	PHLO4	PHYLON	VF
groundcherry, smooth	*Physalis*	*longifolia*	PHYSU	PHLOS	PHYLON	VF
groundcherry, smooth	*Physalis*	*subglabrata*	PHYSU	PHSU8	PHYLON	VF
groundcherry, tomatillo	*Physalis*	*ixocarpa*	PHYIX	PHIX	PHYIXO	VF
groundcherry, Virginia	*Physalis*	*lanceolata*	PHYLC	PHLA22	PHYPUM	VF
groundcherry, Virginia	*Physalis*	*virginiana*	PHYLC	PHVI5	PHYLON	VF
groundsel, common	*Senecio*	*vulgaris*	SENVU	SEVU	SENVUL	VF
groundsel, prairie	*Senecio*	*plattensis*	SENPN	SEPL	SENPLA	VF
groundsel, Riddell	*Senecio*	*riddellii*	SENRI	SERI2	SENRID	VF
groundsel, woodland	*Senecio*	*sylvaticus*	SENSI	SESY	SENSYL	VF
gumweed, curlycup	*Grindelia*	*squarrosa*	GRNSQ	GRSQ	GRISQU	VF
hairgrass, silver	*Aira*	*caryophyllea*	AIRCA	AICA	AIRCAR	VG
halogeton	*Halogeton*	*glomeratus*	HALGL	HAGL	HALGLO	VF
hardgrass	*Sclerochloa*	*dura*	SCMDU	SCDU2	SCLDUR	VG
hawkbit	*Leontodon*	*nudicaulis*	LEBNT	LENU2	LEONUD	VF
hawkbit, fall	*Leontodon*	*autumnalis*	LEBAU	LEAU2	LEOAUT	VF
hawksbeard, bristly	*Crepis*	*setosa*	CVPSE	CRSE2	CRESET	VF
hawksbeard, narrowleaf	*Crepis*	*tectorum*	CVPTE	CRTE3	CRETEC	VF
hawksbeard, rooftop	*Crepis*	*tectorum*	CVPTE	CRTE3	CRETEC	VF
hawksbeard, smooth	*Crepis*	*capillaris*	CVPCA	CRCA3	CRECAP	VF
hawksbeard, western	*Crepis*	*occidentalis*	CVPOC	CROC	CREOCC	VF
hawkweed, common	*Hieracium*	*vulgatum*	HIELA	HIVU	HIEVUL	VF
hawkweed, kingdevil	*Hieracium*	*piloselloides*	HIEPO	HIPI2	HIEPIL	VF
hawkweed, meadow	*Hieracium*	*pratense*	HIECA	HIPR	HIEPRA	VF
hawkweed, mouseear	*Hieracium*	*pilosella*	HIEPI	HIPI	HIEPIO	VF
hawkweed, narrowleaf	*Hieracium*	*umbellatum*	HIEUM	HIUM	HIEUMB	VF
hawkweed, orange	*Hieracium*	*aurantiacum*	HIEAU	HIAU	HIEAUR	VF
hawkweed, yellow	*Hieracium*	*pratense*	HIECA	HIPR	HIEPRA	VF
hawkweed, yellowdevil	*Hieracium*	*floribundum*	HIEFL	HIFL4	HIEFLO	VF
hawthorn, black	*Crataegus*	*douglasii*	CSCDO	CRDO2	CRADOU	VS
hawthorn, fleshy	*Crataegus*	*succulenta*	CSCSC	CRSU5	CRASUC	VS
hawthorn, river	*Crataegus*	rivularis	CSCRV	CRRI	CRADOU	VS

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healall	*Prunella*	*vulgaris*	PRUVU	PRVU	PRUVUL	VF
heaven, tree of	*Ailanthus*	*altissima*	AILAL	AIAL	AILALT	VT
hedge-parsley, field	*Torilis*	*arvensis*	TOIAR	TOAR	TORARV	VF
heliotrope, seaside	*Heliotropium*	*curassavicum*	HEOCU	HECU3	HELCUR	VF
heliotrope, spatulateleaf	*Heliotropium*	*curassavicum*	HEOCB	HECUO2	HELCUR	VF
hellebore, false green	*Veratrum*	*viride*	VEAVI	VEVI	VERVIR	VF
hellebore, false California	*Veratrum*	*californicum*	VEACA	VECA2	VERCAL	VF
hemlock, poison	*Conium*	*maculatum*	COIMA	COMA2	CONMAC	VF
hempnettle, common	*Galeopsis*	*tetrahit*	GAETE	GATE2	GALTET	VF
henbane, black	*Hyoscyamus*	*niger*	HSYNI	HYNI	HYONIG	VF
henbit	*Lamium*	*amplexicaule*	LAMAM	LAAM	LAMAMP	VF
hollyhock	*Alcea*	*rosea*	ALGRO	ALRO3	ALTROS	VF
hollyhock	*Althaea*	*rosea*	ALGRO	ALRO4	ALTROS	VF
honeysuckle, bush	*Diervilla*	*lonicera*	DIVLO	DILO	DIELON	VS
honeysuckle, sweetberry	*Lonicera*	*caerulea*	LONCO	LOCA6	LONCAE	VS
honeysuckle, Tatarian	*Lonicera*	*tatarica*	LONTA	LOTA	LONTAT	VS
horehound, white	*Marrubium*	*vulgare*	MAQVU	MAVU	MARVUL	VF
horsebrush, littleleaf	*Tetradymia*	*glabrata*	TEYGL	TEGL	TETGLA	VS
horsebrush, spineless	*Tetradymia*	*canescens*	TEYCA	TECA2	TETCAN	VS
horsenettle	*Solanum*	*carolinense*	SOLCA	SOCA3	SOLCAR	VF
horseradish	*Armoracia*	*rusticana*	ARRU4		ARMRUS	VF
horsetail, field	*Equisetum*	*arvense*	EQUAR	EQAR	EQUARV	VE
horsetail, giant	*Equisetum*	*telmateia*	EQUTE	EQTE	EQUTEL	VE
horsetail, marsh	*Equisetum*	*palustre*	EQUPA	EQPA	EQUPAL	VE
horsetail, sylvan	*Equisetum*	*sylvaticum*	EQUSY	EQSY	EQUSYL	VE
horsetail, water	*Equisetum*	*fluviatile*	EQUFL	EQFL	EQUFLU	VE
horseweed	*Conyza*	*canadensis*	ERICA	COCA5	CONCAN	VF
horseweed	*Erigeron*	*canadensis*	ERICA	ERCA20	CONCAN	VF
houndstongue	*Cynoglossum*	*officinale*	CYWOF	CYOF	CYNOFF	VF
hydrilla, many-seeded	*Hygrophila*	*polysperma*	HYGPO	HYPO3	HYGPOL	VF
hydrilla, whorled-leaved	*Hydrilla*	*verticillata*	HYLLI	HYVE3	HYDVER	VF
hyssop	*Hyssopus*	*officinalis*	HYSOF	HYOF	HYSOFF	VF
imperata, Brazillian	*Imperata*	*brasiliensis*	IMPBR	IMBR	IMPBRA	VG
imperata, cylindrical	*Imperata*	*cylindrica*	IMPCY	IMCY	IMPCYL	VG
indiangrass, yellow	*Sorghastrum*	*nutans*	SOSNU	SONU2	SORNUT	VG
indigobush	*Amorpha*	*fruticosa*	AMHFR	AMFR	AMOFRU	VS
inula	*Inula*	*helenium*	INUHE	INHE	INUHEL	VF
iris, yellowflag	*Iris*	*pseudacorus*	IRIPS	IRPS	IRIPSE	VF
ivy, English	*Hedera*	*helix*	HEEHE	HEHE	HEDHEL	VF
ivy, German	*Senecio*	*mikanioides*	SENMI	SEMI	SENMIK	VF
ivy, ground	*Nepeta*	*hederacea*	GLEHE	NEHE2	GLEHED	VF
ivy, Kenilworth	*Cymbalaria*	*muralis*	CBYMU	CYMU	CYMMUL	VF
ivy, poison	*Rhus*	*radicans*	TOXRA	RHRA6	TOXRAD	VS
ivy, poison	*Toxicodendron*	*radicans*	TOXRA	TORA2	TOXRAD	VS
jimsonweed	*Datura*	*stramonium*	DATST	DAST	DATSTR	VF
joepyeweed, spotted	*Eupatorium*	*maculatum*	EUPML	EUMA6	EUPMAC	VF
johnsongrass	*Sorghum*	*halepense*	SORHA	SOHA	SORHAL	VG
juniper, common	*Juniperus*	*communis*	IUPCO	JUCO6	JUNCOM	VS

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khakiweed	*Alternanthera*	*pungens*	ALRRE	ALPU3	ALTPUN	VF
khakiweed	*Alternanthera*	*repens*	ALRRE	ALRE2	ALTREP	VF
knapweed, bighead	*Centaurea*	*macrocephala*	CENMC	CEMA9	CENMAR	VF
knapweed, black	*Centaurea*	*nigra*	CENNI	CENI2	CENNIG	VF
knapweed, brown	*Centaurea*	*jacea*	CENJA	CEJA	CENJAC	VF
knapweed, diffuse	*Centaurea*	*diffusa*	CENDI	CEDI3	CENDIF	VF
knapweed, Russian	*Acroptilon*	*repens*	CENRE	ACRE3	CENREP	VF
knapweed, Russian	*Centaurea*	*repens*	CENRE	CERE6	CENREP	VF
knapweed, spotted	*Centaurea*	*maculosa*	CENMA	CEMA4	CENMAC	VF
knapweed, squarrose	*Centaurea*	*squarrosa*	CENSQ	CESQ	CENVIR	VF
knapweed, squarrose	*Centaurea*	*virgata*	CENSQ	CEVI	CENVIR	VF
knapweed, squarrose	*Centaurea*	*virgata*	CENSQ	CEVIS	CENVIR	VF
knapweed, Vochin	*Centaurea*	*nigrescens*	CENVO	CENI3	CENNIR	VF
knawel	*Scleranthus*	*annuus*	SCRAN	SCAN2	SCLANN	VF
knotgrass	*Paspalum*	*distichum*	PASDS	PADI6	PASDIS	VG
knotweed, bushy	*Polygonum*	*ramosissimum*	POLRA	PORA3	POLRAM	VF
knotweed, Douglas'	*Polygonum*	*douglasii*	POLDO	PODO4	POLDOU	VF
knotweed, erect	*Polygonum*	*erectum*	POLER	POER2	POLERE	VF
knotweed, Japanese	*Polygonum*	*cuspidatum*	POLCU	POCU6	POLCUS	VF
knotweed, prostrate	*Polygonum*	*aviculare*	POLAV	POAV	POLAVI	VF
knotweed, sakhalin	*Polygonum*	*sachalinense*	REYSA	POSA4	POLSAC	VF
knotweed, striate	*Polygonum*	*achoreum*	POLAH	POAC3	POLACH	VF
kochia	*Kochia*	*scoparia*	KCHSC	KOSC	KOCSCO	VF
labriform	*Asclepias*	*labriformis*	ASCLA	ASLA	ASCLAB	VF
ladysmantle	*Alchemilla*	*vulgaris*	ALCVU	ALVU2	ALCVUL	VF
ladysmantle	*Alchemilla*	*xanthochlora*	ALCVU	ALXA	ALCVUL	VF
ladysthumb	*Polygonum*	*persicaria*	POLPE	POPE3	POLPER	VF
lambsquarters, common	*Chenopodium*	*album*	CHEAL	CHAL7	CHEALB	VF
lambsquarters, narrow leaf	*Chenopodium*	*desiccatum*	CHEPR	CHDE	CHELEP	VF
lambsquarters, netseed	*Chenopodium*	*berlandieri*	CHEBE	CHBE4	CHEALB	VF
lambsquarters, slimleaf	*Chenopodium*	*leptophyllum*	CHELE	CHLE4	CHELEP	VF
larkspur, duncecap	*Delphinium*	*occidentale*	DELOC	DEOC	DELOCC	VF
larkspur, Geyer	*Delphinium*	*geyeri*	DELGE	DEGE2	DELGEY	VF
larkspur, low	*Delphinium*	*nuttallianum*	DELNU	DENU2	DELNUT	VF
leadplant	*Amorpha*	*canescens*	AMHCN	AMCA6	AMOCAN	VS
lettuce, biennial	*Lactuca*	*biennis*	LACBI	LABI	LACBIE	VF
lettuce, blue	*Lactuca*	*pulchella*	LACPU	LAPU	LACOBL	VF
lettuce, prickly	*Lactuca*	*serriola*	LACSE	LASE	LACSER	VF
lettuce, tall	*Lactuca*	*canadensis*	LACCA	LACA	LACCAN	VF
lettuce, wall	*Lactuca*	*muralis*	MYLMU	LAMU	LACMUR	VF
lettuce, willowleaf	*Lactuca*	*saligna*	LACSL	LASA	LACSAL	VF
licorice, wild	*Glycyrrhiza*	*lepidota*	GYCLE	GLLE3	GLYLEP	VF
lily-of-the-valley, false	*Maianthemum*	*canadense*	MNHCA	MACA4	MAICAN	VF
limnophila, sedentary	*Limnophila*	*sessiliflora*	LIOSE	LISE3	LIMSEI	VF
loco, spotted	*Astragalus*	*lentiginosus*	ASALE	ASLE8	ASTLEN	VF
loosestrife, dotted	*Lysimachia*	*punctata*	LYSPU	LYPU2	LYSPUN	VF
loosestrife, fringed	*Lysimachia*	*ciliata*	LYSCI	LYCI	LYSCIL	VF
loosestrife, garden	*Lysimachia*	*vulgaris*	LYSVU	LYVU	LYSVUL	VF

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loosestrife, purple	*Lythrum*	*salicaria*	LYTSA	LYSA2	LYTSAL	VF
loosestrife, winged	*Lythrum*	*alatum*	LYTAL	LYAL4	LYTALA	VF
lovegrass, India	*Eragrostis*	*pilosa*	ERAPI	ERPI2	ERAPIL	VG
lovegrass, purple	*Eragrostis*	*spectabilis*	ERASP	ERSP	ERASPE	VG
lovegrass, tufted	*Eragrostis*	*pectinacea*	ERAPE	ERPE	ERAPEC	VG
lupine, low	*Lupinus*	*pusillus*	LUPPU	LUPU	LUPPUS	VF
lupine, silky	*Lupinus*	*sericeus*	LUPSE	LUSE4	LUPSER	VF
lupine, silver	*Lupinus*	*argenteus*	LUPAR	LUAR3	LUPARG	VF
lupine, tailcup	*Lupinus*	*caudatus*	LUPCA	LUCA	LUPCAU	VF
lupine, velvet	*Lupinus*	*leucophyllus*	LUPLE	LULE3	LUPLEU	VF
madder, field	*Sherardia*	*arvensis*	SHRAR	SHAR2	SHEARV	VF
mallow, common	*Malva*	*neglecta*	MALNE	MANE	MALNEG	VF
mallow, common	*Malva*	*rotundifolia*	MALNE	MARO11	MALROT	VF
mallow, curled	*Malva*	*verticillata*	MALVE	MAVEC	MALVER	VF
mallow, high	*Malva*	*sylvestris*	MALSI	MASY	MALSYL	VF
mallow, little	*Malva*	*parviflora*	MALPA	MAPA5	MALPAR	VF
mallow, musk	*Malva*	*moschata*	MALMO	MAMO2	MALMOS	VF
mallow, Venice	*Hibiscus*	*trionum*	HIBTR	HITR	HIBTRI	VF
maltese-cross	*Lychnis*	*chalcedonica*	LYHCH	LYCH3	LYCCHA	VF
mannagrass, rattlesnake	*Glyceria*	*canadensis*	GLYCA	GLCA	GLYCAN	VG
maple, bigleaf	*Acer*	*macrophyllum*	ACRMA	ACMA3	ACEMAC	VT
maple, red	*Acer*	*rubrum*	ACRRB	ACRU	ACERUB	VT
maple, sugar	*Acer*	*saccharum*	ACRSC	ACSA3	ACESAC	VT
marestail	*Hippuris*	*vulgaris*	HPPVU	HIVU2	HIPVUL	VF
marigold, fetid	*Dyssodia*	*papposa*	DYSPA	DYPA	DYSPAP	VF
marijuana	*Cannabis*	*sativa*	CNISA	CASA3	CANSAT	VF
marjoram, wild	*Origanum*	*vulgare*	ORIVU	ORVU	ORIVUL	VF
marshelder	*Iva*	*xanthifolia*	IVAXA	IVXA	IVAXAN	VF
marshelder, annual	*Iva*	*annua*	IVAAN	IVAN2	IVAANN	VF
matrimonyvine	*Lycium*	*halimifolium*	LYUHA	LYHA	LYCHAL	VS
medic, black	*Medicago*	*lupulina*	MEDLU	MELU	MEDLUP	VF
medic, spotted	*Medicago*	*arabica*	MEDAB	MEAR	MEDARA	VF
medusahead	*Elymus*	*caput-medusae*	ELYCM	ELCA13	TAECAP	TA
medusahead	*Taeniatherum*	*caput-medusae*	ELYCM	TACA8	TAECAP	VG
mesquite, honey	*Prosopis*	*glandulosa*	PRCJG	PRGL2	PROGLA	VS
mignonette, yellow	*Reseda*	*lutea*	RESLU	RELU	RESLUT	VF
mikania, heart-leaved	*Mikania*	*cordata*	MIKCO	MICO16	MIKCOR	VF
mikania, small-leaved	*Mikania*	*micrantha*	MIKMI	MIMI5	MIKMIC	VF
milkthistle, blessed	*Silybum*	*marianum*	SLYMA	SIMA3	SILMAR	VF
milkvetch, Columbia	*Astragalus*	*miser*	ASAMS	ASMIS	ASTMIS	VF
milkvetch, Robbins	*Astragalus*	*robbinsii*	ASROM		ASTROB	VF
milkvetch, timber	*Astragalus*	*miser*	ASAMI	ASMI9	ASTMIS	VF
milkvetch, twogrooved	*Astragalus*	*bisulcatus*	ASABI	ASBI2	ASTBIS	VF
milkvetch, Yellowstone	*Astragalus*	*miser*	ASAMH	ASMIH	ASTMIS	VF
milkweed, butterfly	*Asclepias*	*tuberosa*	ASCTU	ASTU	ASCTUB	VF
milkweed, common	*Asclepias*	*syriaca*	ASCSY	ASSY	ASCSYR	VF
milkweed, eastern whorled	*Asclepias*	*verticillata*	ASCVE	ASVE	ASCVER	VF
milkweed, green	*Asclepias*	*viridiflora*	ASCVI	ASVI	ASCVIR	VF

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milkweed, Mexican whorled	*Asclepias*	*fascicularis*	ASCFA	ASFA	ASCFAS	VF
milkweed, showy	*Asclepias*	*speciosa*	ASCSP	ASSP	ASCSPE	VF
milkweed, swamp	*Asclepias*	*incarnata*	ASCIN	ASIN	ASCINC	VF
milkweed, western whorled	*Asclepias*	*subverticillata*	ASCSU	ASSU2	ASCSUB	VF
millet, foxtail	*Setaria*	*italica*	SETIT	SEIT	SETITA	VG
millet, kodo	*Paspalum*	*scrobiculatum*	PASOR	PASC6	PASSCR	VG
millet, wild proso	*Panicum*	*miliaceum*	PANMI	PAMI2	PANMIL	VG
mimosa, catclaw	*Mimosa*	*pigra*	MIMPI	MIPI	MIMPIG	VF
mimosa, slow	*Mimosa*	*pigra*	MIMPI	MIPI	MIMPIG	VF
mimosa, two-thrush	*Mimosa*	*invisa*	MIMIN	MIIN80	MIMDIP	VF
mint, apple	*Mentha*	*suaveolens*	MENSU	MESU5	MENSUA	VF
mint, field	*Mentha*	*arvensis*	MENAR	MEAR4	MENARV	VF
mint, roundleaved	*Mentha*	*rotundifolia*	MENSU	MERO	MENSUA	VF
molly, green	*Kochia*	*americana*	KCHAM	KOAM	KOCAME	VF
monochoria, arrowleaved	*Monochoria*	*hastata*	MOOHA	MOHA2	MONHAS	VF
monochoria, sliverleaf	*Monochoria*	*hastata*	MOOHA	MOHA2	MONHAS	VF
morningglory, red	*Ipomoea*	*coccinea*	IPOCC	IPCO3	IPOCOC	VF
morningglory, tall	*Ipomoea*	*purpurea*	PHBPU	IPPU2	IPOPUR	VF
morningglory, threelobe	*Ipomoea*	*triloba*	IPOTR	IPTR2	IPOTRI	VF
morningglory, woolly	*Ipomoea*	*hirsutula*	IPOHT	IPHI2	IPOHIR	VF
motherwort	*Leonurus*	*cardiaca*	LECCA	LECA2	LEOCAR	VF
mountain ash, European	*Sorbus*	*aucuparia*	SOUAU	SOAU	SORAUC	VT
mousetail	*Myosurus*	*minimus*	MYSMI	MYMI2	MYOMIN	VF
mugwort	*Artemisia*	*vulgaris*	ARTVU	ARVU	ARTVUL	VF
mugwort, California	*Artemisia*	*douglasiana*	ARTDO	ARDO3	ARTDOU	VF
muhly, alkali	*Muhlenbergia*	*asperifolia*	MUHAS	MUAS	MUHASP	VG
muhly, wirestem	*Muhlenbergia*	*frondosa*	MUHFR	MUFR2	MUHFRO	VG
mulberry, red	*Morus*	*rubra*	MORRU	MORU2	MORRUB	VT
mulberry, white	*Morus*	*alba*	MORAL	MOAL	MORALB	VT
mullein, common	*Verbascum*	*thapsus*	VESTH	VETH	VERTHA	VF
mullein, moth	*Verbascum*	*blattaria*	VESBL	VEBL	VERBLA	VF
mullein, purplestamen	*Verbascum*	*virgatum*	VESVI	VEVI2	VERVIA	VF
mullein, turkey	*Eremocarpus*	*setigerus*	ERMSE	ERSE3	ERESET	VF
mullein, wand	*Verbascum*	*virgatum*	VESVI	VEVI2	VERVIA	VF
mustard, ball	*Neslia*	*paniculata*	NEAPA	NEPA3	NESPAN	VF
mustard, birdsrape	*Brassica*	*campestris*	BRSRA	BRCA2	BRACAM	VF
mustard, birdsrape	*Brassica*	*rapa*	BRSRA	BRRA	BRACAM	VF
mustard, black	*Brassica*	*nigra*	BRSNI	BRNI	BRANIG	VF
mustard, blue	*Chorispora*	*tenella*	COBTE	CHTE2	CHOTEN	VF
mustard, dog	*Erucastrum*	*gallicum*	ERWGA	ERGA	ERUGAL	VF
mustard, garlic	*Alliaria*	*petiolata*	ALAPE	ALPE4	ALLPET	VF
mustard, haresear	*Conringia*	*orientalis*	CNHOR	COOR	CONORI	VF
mustard, hedge	*Sisymbrium*	*officinale*	SSYOF	SIOF	SISOFF	VF
mustard, Indian	*Brassica*	*juncea*	BRSJU	BRJU	BRAJUN	VF
mustard, Oriental	*Sisymbrium*	*orientale*	SSYOR	SIOR4	SISORI	VF
mustard, Syrian	*Euclidium*	*syriacum*	EUISY	EUSY	EUCSYR	VF
mustard, tall hedge	*Sisymbrium*	*loeselii*	SSYLO	SILO3	SISLOE	VF
mustard, tower	*Arabis*	*glabra*	ARCGL	ARGL	ARAGLA	VF

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mustard, tumble	*Sisymbrium*	*altissimum*	SSYAL	SIAL2	SISALT	VF
mustard, wallflower	*Erysimum*	*cheiranthoides*	ERYCH	ERCH9	ERYCHE	VF
mustard, white	*Brassica*	*alba*	SINAL		BRAHIR	VF
mustard, white	*Brassica*	*hirta*	SINAL	BRHI2	BRAHIR	VF
mustard, white	*Sinapis*	*alba*	SINAL	SIAL5	BRAHIR	VF
mustard, wild	*Brassica*	*arvensis*	SINAR	BRAR11	BRAKAB	VF
mustard, wild	*Brassica*	*kaber*	SINAR	BRKA	BRAKAB	VF
mustard, wild	*Sinapis*	*arvensis*	SINAR	SIAR4	BRAKAB	VF
naiad, hollyleaf	*Najas*	*marina*	NAIMA	NAMA	NAJMAR	VF
naiad, slender	*Najas*	*flexilis*	NAIFL	NAFL	NAJFLE	VF
naiad, southern	*Najas*	*guadalupensis*	NAIGU	NAGU	NAJGUA	VF
nannyberry	*Viburnum*	*lentago*	VIBLE	VILE	VIBLEN	VS
nassella, cut hair	*Nassella*	*trichotoma*	STDTR		NASTRI	VG
needle-and-thread	*Stipa*	*comata*	STDCO	STCO4	STICOM	VG
nettle, burning	*Urtica*	*urens*	URTUR	URUR	URTURN	VF
nettle, stinging	*Urtica*	*dioica*	URTDI	URDI	URTDIO	VF
nightshade, American black	*Solanum*	*americanum*	SOLAM	SOAM	SOLINT	VF
nightshade, bittersweet	*Solanum*	*dulcamara*	SOLDU	SODU	SOLDUL	VS
nightshade, black	*Solanum*	*nigrum*	SOLNI	SONI	SOLNIG	VF
nightshade, cutleaf	*Solanum*	*triflorum*	SOLTR	SOTR	SOLTRI	VF
nightshade, eastern black	*Solanum*	*ptycanthum*	SOLPT	SOPT3	SOLNIG	VF
nightshade, hairy	*Solanum*	*sarrachoides*	SOLSA	SOSA8	SOLSAR	VF
nightshade, hairy	*Solanum*	*villosum*	SOLSA	SOVI6	SOLSAR	VF
nightshade, silverleaf	*Solanum*	*elaeagnifolium*	SOLEL	SOEL	SOLELA	VF
nipplewort	*Lapsana*	*communis*	LAPCO	LACO3	LAPCOM	VF
nutsedge, false	*Cyperus*	*strigosus*	CYPST	CYST	CYPSTR	VG
nutsedge, purple	*Cyperus*	*rotundus*	CYPRO	CYRO	CYPROT	VG
nutsedge, yellow	*Cyperus*	*esculentus*	CYPES	CYES	CYPESC	VG
nuttall	*Delphinium*	*nuttallianum*	DENUF	C. L. Hitchc.	DELNUT	VF
oat, animated	*Avena*	*sterilis*	AVEST	AVST	AVESTE	VG
oat, slender	*Avena*	*barbata*	AVEBA	AVBA	AVEBAR	VG
oat, wild	*Avena*	*fatua*	AVEFA	AVFA	AVEFAT	VG
oatgrass, poverty	*Danthonia*	*spicata*	DANSP	DASP2	DANSPI	VG
oatgrass, tall	*Arrhenatherum*	*elatius*	ARREL	AREL3	ARRELA	VG
oats	*Avena*	*sativa*	AVESA	AVSA	AVESAT	VG
olive, autumn	*Elaeagnus*	*umbellata*	ELGUM	ELUM	ELAUMB	VT
olive, Russian	*Elaeagnus*	*angustifolia*	ELGAN	ELAN	ELAANG	VT
onion, wild	*Allium*	*canadense*	ALLCA	ALCA3	ALLCAN	VF
onionweed	*Asphodelus*	*fistulosus*	ASHFI	ASFI2	ASPFIS	VF
orach, garden	*Atriplex*	*hortensis*	ATXHO	ATHO	ATRHOR	VF
orach, halberdleaf	*Atriplex*	*hastata*	ATXHA	ATHA	ATRPAT	VF
orach, halberdleaf	*Atriplex*	*patula*	ATXHA	ATPAH2	ATRPAT	VF
orach, red	*Atriplex*	*rosea*	ATXRO	ATRO	ATRROS	VF
orach, spreading	*Atriplex*	*patula*	ATXPA	ATPA4	ATRPAT	VF
orange, osage	*Maclura*	*pomifera*	MACPO	MAPO	MACPOM	VT
orchardgrass	*Dactylis*	*glomerata*	DACGL	DAGL	DACGLO	VG
oxeye	*Heliopsis*	*helianthoides*	HEFHE	HEHE5	HELHEL	VF
oxtongue, bristly	*Picris*	*echioides*	PICEC	PIEC	PICECH	VF

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panicum, fall	*Panicum*	*dichotomiflorum*	PANDI	PADI	PANDIC	VG
panicum, woolly	*Panicum*	*lanuginosum*	PANLG	PALA18	PANOCC	VG
pansy, field	*Viola*	*rafinesquii*	VIORA	VIRA5	VIORAF	VF
parrotfeather	*Myriophyllum*	*aquaticum*	MYPBR	MYAQ2	MYRBRA	VF
parrotfeather	*Myriophyllum*	*brasiliense*	MYPBR	MYBR	MYRBRA	VF
parsely, cow	*Anthriscus*	*sylvestris*	ANRSY	CHSY	ANTSYL	VF
parsnip, wild	*Pastinaca*	*sativa*	PAVSA	PASA2	PASSAT	VF
paulownia, royal	*Paulownia*	*tomentosa*	PAZTO	PATO2	PAUTOM	VT
peach	*Prunus*	*persica*	PRNPS	PRPE3	PRUPER	VT
pearlwort, birdseye	*Sagina*	*procumbens*	SAIPR	SAPR	SAGPRO	VF
peavine, everlasting	*Lathyrus*	*latifolius*	LTHLA	LALA4	LATLAT	VF
peavine, flat	*Lathyrus*	*sylvestris*	LTHSY	LASY	LATSYL	VF
peavine, marsh	*Lathyrus*	*palustris*	LTHPA	LAPA4	LATPAL	VF
peavine, meadow	*Lathyrus*	*pratensis*	LTHPR	LAPR	LATPRA	VF
pellitory, Pennsylvania	*Parietaria*	*pensylvanica*	PAIPE	PAPE5	PARPEN	VF
pennycress, field	*Thlaspi*	*arvense*	THLAR	THAR5	THLARV	VF
pennycress, perfoliate	*Thlaspi*	*perfoliatum*	THLPE	THPE	THAPER	VF
pennycress, thoroughwort	*Thlaspi*	*perfoliatum*	THLPE	THPE	THAPER	VF
pennywort, floating water	*Hydrocotyle*	*ranunculoides*	HYDRA	HYRA	HYDRAN	VF
peppermint	*Mentha*	*piperita*	MENPI	MEPI	MENXPI	VF
pepperweed, clasping	*Lepidium*	*perfoliatum*	LEPPE	LEPE2	LEPPER	VF
pepperweed, field	*Lepidium*	*campestre*	LEPCA	LECA5	LEPCAM	VF
pepperweed, greenflower	*Lepidium*	*densiflorum*	LEPDE	LEDE	LEPDEN	VF
pepperweed, narrowleaf	*Lepidium*	*ruderale*	LEPRU	LERU	LEPRUD	VF
pepperweed, perennial	*Lepidium*	*latifolium*	LEPLA	LELA2	LEPLAT	VF
pepperweed, Virginia	*Lepidium*	*virginicum*	LEPVI	LEVI3	LEPVIR	VF
pepperwort, hairy	*Marsilea*	*mucronata*	MASMU	MAMU5	MARVES	VE
pepperwort, hairy	*Marsilea*	*vestita*	MASMU	MAVE2	MARVES	VE
periwinkle, big	*Vinca*	*major*	VINMA	VIMA	VINMAJ	VF
periwinkle, greater	*Vinca*	*major*	VINMA	VIMA	VINMAJ	VF
pickerel-weed, sheathed	*Monochoria*	*vaginalis*	MOOVA	MOVA	MONVAG	VF
pigweed, prostrate	*Amaranthus*	*blitoides*	AMABL	AMBL	AMAGRA	VF
pigweed, prostrate	*Amaranthus*	*graecizans*	AMABL	AMGR	AMAGRA	VF
pigweed, redroot	*Amaranthus*	*retroflexus*	AMARE	AMRE	AMARET	VF
pigweed, Russian	*Axyris*	*amaranthoides*	AXYAM	AXAM	AXYAMA	VF
pigweed, smooth	*Amaranthus*	*hybridus*	AMACH	AMHY	AMAHYB	VF
pigweed, tumble	*Amaranthus*	*albus*	AMAAL	AMAL	AMAALB	VF
pigweed, winged	*Cycloloma*	*atriplicifolium*	CYMAT	CYAT	CYCATR	VF
pimpernel, false	*Lindernia*	*dubia*	LIDAE	LIDUA	LINDUB	VF
pimpernel, scarlet	*Anagallis*	*arvensis*	ANGAR		ANAARV	VF
pineapple-weed	*Matricaria*	*matricarioides*	MATMT	MAMA11	MATMAT	VF
pink, Deptford	*Dianthus*	*armeria*	DINAR	DIAR	DIAARM	VF
plant, manna	*Tamarix*	*gallica*	TAAGA	TAGA	TAMGAL	VS
plantain, blackseed	*Plantago*	*rugelii*	PLARU	PLRU	PLARUG	VF
plantain, bracted	*Plantago*	*aristata*	PLAAR	PLAR3	PLAARI	VF
plantain, broadleaf	*Plantago*	*major*	PLAMA	PLMA2	PLAMAJ	VF
plantain, buckhorn	*Plantago*	*lanceolata*	PLALA	PLLA	PLALAN	VF
plantain, slender	*Plantago*	*elongata*	PLAPU	PLEL	PLAELO	VF

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plantain, woolly	*Plantago*	*patagonica*	PLAPR	PLPA2	PLAPAT	VF
plantain, woolly	*Plantago*	*purshii*	PLAPR	PLPU80	PLAPAT	VF
plum, American	*Prunus*	*americana*	PRNAM	PRAM	PRUAME	VS
plum, garden	*Prunus*	*domestica*	PRNDO	PRDO	PRUDOM	VS
plum, Indian	*Oemleria*	*cerasiformis*	OECE		OEMCER	VS
plume moss, delicate	*Thuidium*	*delicatulum*	THDER		THUDEL	NM
poison-oak, Pacific	*Rhus*	*diversiloba*	RHUDI	RHDI6	RHUDIV	VS
pokeweed, common	*Phytolacca*	*americana*	PHTAM	PHAM4	PHYAME	VF
polemonium, annual	*Polemonium*	*micranthum*	PMNMI	POMI	POLMIC	VF
polypogon, rabbitfoot	*Polypogon*	*monspeliensis*	POHMO	POMO5	POLMON	VG
pondweed, American	*Potamogeton*	*nodosus*	PTMNO	PONO2	POTNOD	VF
pondweed, baby	*Potamogeton*	*pusillus*	PTMPU	POPU7	POTPUS	VF
pondweed, curlyleaf	*Potamogeton*	*crispus*	PTMCR	POCR3	POTCRI	VF
pondweed, fineleaf	*Potamogeton*	*filiformis*	PTMFI	POFI2	POTFIL	VF
pondweed, flatstem	*Potamogeton*	*zosteriformis*	PTMZO	POZO	POTZOS	VF
pondweed, floatingleaf	*Potamogeton*	*natans*	PTMNA	PONA4	POTNAT	VF
pondweed, Fries	*Potamogeton*	*friesii*	PTMFR	POFR3	POTFRI	VF
pondweed, horned	*Zannichellia*	*palustris*	ZAIPA	ZAPA	ZANPAL	VF
pondweed, Illinois	*Potamogeton*	*illinoensis*	PTMIL	POIL	POTILL	VF
pondweed, largeleaf	*Potamogeton*	*amplifolius*	PTMAM	POAM5	POTAMP	VF
pondweed, leafy	*Potamogeton*	*foliosus*	PTMFO	POFO3	POTFOL	VF
pondweed, ribbonleaf	*Potamogeton*	*epihydrus*	PTMEP	POEP2	POTEPI	VF
pondweed, sago	*Potamogeton*	*pectinatus*	PTMPE	POPE6	POTPEC	VF
pondweed, small	*Potamogeton*	*pusillus*	PTMPU	POPU7	POTPUS	VF
pondweed, variable	*Potamogeton*	*gramineus*	PTMGR	POGR8	POTGRM	VF
pondweed, waterthread	*Potamogeton*	*diversifolius*	PTMDF	PODI	POTDIE	VF
pondweed, whitestem	*Potamogeton*	*praelongus*	PTMPR	POPR5	POTPRA	VF
poplar, balsam	*Populus*	*balsamifera*	POPBA	POBA2	POPBAL	VT
poplar, white	*Populus*	*alba*	POPAL	POAL7	POPALB	VT
poppy, corn	*Papaver*	*rhoeas*	PAPRH	PARH2	PAPRHO	VF
poppy, doubting	*Papaver*	*dubium*	PAPDU	PADU	PAPDUB	VF
poppy, field	*Papaver*	*dubium*	PAPDU	PADU	PAPDUB	VF
poppy, pinnate	*Papaver*	*argemone*	PAPAR	PAAR3	PAPARG	VF
poppymallow, purple	*Callirhoe*	*involucrata*	COEIN	CAIN2	CALINV	VF
porcupinegrass	*Stipa*	*spartea*	STDSP	STSP2	STISPA	VG
povertyweed, Nuttall	*Monolepis*	*nuttalliana*	MOPNU	MONU	MONNUT	VF
pricklepoppy, annual	*Argemone*	*intermedia*	ARGPL	ARIN7	ARGPOL	VF
pricklepoppy, annual	*Argemone*	*polyanthemos*	ARGPL	ARPO2	ARGPOL	VF
pricklypear, brittle	*Opuntia*	*fragilis*	OPUFR	OPFR	OPUFRA	VF
pricklypear, plains	*Opuntia*	*polyacantha*	OPUPO	OPPO	OPUPOL	VF
pricklypear, spreading	*Opuntia*	*humifusa*	OPUHU	OPHU	OPUHUM	VF
primrose, water	*Ludwigia*	*peploides*	LUDPE	LUPE5	LUDPEP	VF
princess-feather	*Polygonum*	*orientale*	POLOR	POOR2	POLORI	VF
prosopis, jointed	*Prosopis*	*velutina*	PRCJV	PRVE	PROVEL	VS
prosopis, stuffed	*Prosopis*	*farcta*	PRCST	PRFA2	PROFAR	VS
puccoon, hoary	*Lithospermum*	*canescens*	LITCA	LICA12	LITCAN	VF
puncturevine	*Tribulus*	*terrestris*	TRBTE	TRTE	TRITER	VF
purslane, common	*Portulaca*	*oleracea*	POROL	POOL	POROLE	VF

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pussytoes, field	*Antennaria*	*neglecta*	ANXNE		ANTNEG	VF
pussytoes, plantainleaf	*Antennaria*	*plantaginifolia*	ANXPL	GNPL	ANTPAL	VF
quackgrass	*Agropyron*	*repens*	AGRRE	AGRE2	AGRREP	VG
quackgrass	*Elytrigia*	*repens*	AGRRE	ELRE3	AGRREP	VG
queen-of-the-prairie	*Filipendula*	*rubra*	FIIRU	FIRU2	FILRUB	VF
rabbitbrush, common	*Chrysothamnus*	*nauseosus*	CYTNG	CHNAG5	CHRNAU	VS
rabbitbrush, Douglas	*Chrysothamnus*	*viscidiflorus*	CYTVI	CHVI8	CHRVIS	VS
rabbitbrush, gray	*Chrysothamnus*	*nauseosus*	CYTNA	CHNA2	CHRNAU	VS
rabbitbrush, greenplume	*Chrysothamnus*	*graveolens*	CYTNG	CHGR12	CHRNAU	VS
rabbitbrush, Parry	*Chrysothamnus*	*parryi*	CYTPA	CHPA13	CHRPAR	VS
radish	*Raphanus*	*sativus*	RAPSN	RASA2	RAPSAT	VF
radish, wild	*Raphanus*	*raphanistrum*	RAPRA	RARA2	RAPRAP	VF
ragweed, common	*Ambrosia*	*artemisiifolia*	AMBEL	AMAR2	AMBART	VF
ragweed, giant	*Ambrosia*	*trifida*	AMBTR	AMTR	AMBTRI	VF
ragweed, perennial	*Ambrosia*	*coronopifolia*	AMBPC	AMCO5	AMBPSI	VF
ragweed, western	*Ambrosia*	*psilostachya*	AMBPS	AMPS	AMBPSI	VF
ragwort, tansy	*Senecio*	*jacobaea*	SENJA	SEJA	SENJAC	VF
ragwort, woodland	*Senecio*	*viscosus*	SENVI	SEVI2	SENVIS	VF
raspberry, European red	*Rubus*	*idaeus*	RUBID	RUID	RUBIDA	VS
rattle, yellow	*Rhinanthus*	*crista-galli*	RHIMI	RHCR2	RHICRI	VF
rattle, yellow	*Rhinanthus*	*minor*	RHIMI	RHMI13	RHICRI	VF
redcedar, eastern	*Juniperus*	*virginiana*	IUPVI	JUVI	JUNVIR	VT
redstem	*Ammannia*	*auriculata*	AMMAU	AMAU2	AMMAUR	VF
redtop	*Agrostis*	*alba*	AGSGI	AGAL3	AGRSTO	VG
redtop	*Agrostis*	*gigantea*	AGSGI	AGGI2	AGRSTO	VG
reed, common	*Phragmites*	*australis*	PHRCO	PHAU7	PHRAUS	VG
reed, common	*Phragmites*	*communis*	PHRCO	PHCO15	PHRAUS	VG
rescuegrass	*Bromus*	*catharticus*	BROCA	BRCA6	BROCAT	VG
rhododendron, Indian	*Melastoma*	*malabathricum*	MESMA	MEMA	MELMAL	VF
robert, herb	*Geranium*	*robertianum*	GERRO	GERO	GERROB	VF
rocket, garden	*Eruca*	*sativa*	ERUVE	ERSA7	ERUSAT	VF
rocket, London	*Sisymbrium*	*irio*	SSYIR	SIIR	SISIRI	VF
rocket, sand	*Diplotaxis*	*muralis*	DIPMU	DIMU2	DIPMUR	VF
rocket, wall	*Diplotaxis*	*tenuifolia*	DIPTE	DITE4	DIPTEN	VF
rocket, yellow	*Barbarea*	*vulgaris*	BARVU	BAVU	BARVUL	VF
rose, dog	*Rosa*	*canina*	ROSCN	ROCA3	ROSCAN	VS
rose, multiflora	*Rosa*	*multiflora*	ROSMU	ROMU	ROSMUL	VS
rose, prairie wild	*Rosa*	*arkansana*	ROSAK	ROAR3	ROSARK	VS
rose, prickly	*Rosa*	*acicularis*	ROSAC	ROAC	ROSACI	VS
rose, sweetbriar	*Rosa*	*eglanteria*	ROSRB	ROEG	ROSEGL	VF
rose, sweetbriar	*Rosa*	*rubiginosa*	ROSRB	RORU82	ROSEGL	VF
rose, Virginia	*Rosa*	*virginiana*	ROSVI	ROVI2	ROSVIR	VS
rosinweed, cup	*Silphium*	*perfoliatum*	SIPPE	SIPE2	SILPER	VF
rue, African	*Peganum*	*harmala*	PEGHA	PEHA	PEGHAR	VF
rush, Baltic	*Juncus*	*balticus*	IUNBA	JUBA	JUNBAL	VG
rush, flowering	*Butomus*	*umbellatus*	BUTUM	BUUM	BUTUMB	VF
rush, slender	*Juncus*	*tenuis*	IUNTE	JUTE	JUNTEN	VG
rush, soft	*Juncus*	*effusus*	IUNEF	JUEF	JUNEFF	VG

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rush, toad	*Juncus*	*bufonius*	IUNBU	JUBU	JUNBUF	VG
rush, tufted	*Juncus*	*acuminatus*	IUNAN	JUAC	JUNACU	VG
ryegrass, Italian	*Lolium*	*multiflorum*	LOLMU	LOMU	LOLMUL	VG
ryegrass, perennial	*Lolium*	*perenne*	LOLPE	LOPE	LOLPER	VG
ryegrass, poison	*Lolium*	*temulentum*	LOLTE	LOTE2	LOLTEM	VG
sacaton, alkali	*Sporobolus*	*airoides*	SPZAI	SPAI	SPOAIR	VG
sage, lanceleaf	*Salvia*	*reflexa*	SALRE	SARE3	SALREF	VF
sage, meadow	*Salvia*	*pratensis*	SALPR	SAPR2	SALPRA	VS
sage, Mediterranean	*Salvia*	*aethiopis*	SALAE	SAAE	SALAET	VF
sagebrush, big	*Artemisia*	*tridentata*	ARTTR	ARTR2	ARTTRI	VS
sagebrush, fringed	*Artemisia*	*frigida*	ARTFR	ARFR4	ARTFRI	VS
sagebrush, sand	*Artemisia*	*filifolia*	ARTFI	ARFI2	ARTFIL	VS
sagewort, common	*Artemisia*	*campestris*	ARTCM	ARCA12	ARTCAM	VF
sagewort, field	*Artemisia*	*campestris*	ARTCC	ARCAC	ARTCAM	VF
sagewort, field	*Artemisia*	*caudata*	ARTCC	ARCA24	ARTCAM	VF
salsify, common	*Tragopogon*	*porrifolius*	TROPS	TRPO	TRAPOR	VF
salsify, meadow	*Tragopogon*	*pratensis*	TROPR	TRPR	TRAPRA	VF
salsify, western	*Tragopogon*	*dubius*	TRODM	TRDU	TRADUB	VF
saltbrush, Australian	*Atriplex*	*semibaccata*	ATXSE	ATSE	ATRSEM	VF
saltbush, fourwing	*Atriplex*	*canescens*	ATXCA	ATCA2	ATRCAN	VS
saltbush, silverscale	*Atriplex*	*argentea*	ATXAR	ATAR2	ATRARG	VF
saltcedar	*Tamarix*	*ramosissima*	TAARA	TARA	TAMRAM	VS
saltgrass	*Distichlis*	*spicata*	DISSP	DISP	DISSPI	VG
saltwort, spiny	*Salsola*	*kali*	SASKA	SAKA	SALIBE	VF
sandbur, longspine	*Cenchrus*	*longispinus*	CCHPA	CELO3	CENLON	VG
sandspurry, red	*Spergularia*	*rubra*	SPBRU	SPRU	SPERUB	VF
sandwort, grove	*Arenaria*	*lateriflora*	MGJLA	ARLA15	ARELAT	VF
sandwort, grove	*Moehringia*	*lateriflora*	MGJLA	MOLA6	ARELAT	VF
sandwort, thymeleaf	*Arenaria*	*serpyllifolia*	ARISE	ARSE2	ARESER	VF
scouringrush	*Equisetum*	*hyemale*	EQUHY	EQHY	EQUHYE	VE
scurfpea, lemon	*Psoralea*	*lanceolata*	PSRLA	PSLA	PSOLAN	VF
sea-rocket	*Cakile*	*maritima*	CAKMA	CAMA	CAKMAR	VF
sedge, beaked	*Carex*	*rostrata*	CRXRO	CARO6	CARROT	VG
sedge, Nebraska	*Carex*	*nebraskensis*	CRXNB	CANE2	CARNEB	VG
sedge, ripgut	*Carex*	*lacustris*	CRXLA	CALA16	CARLAC	VG
sedge, sugargrass	*Carex*	*atherodes*	CRXAT	CAAT2	CARATH	VG
sedge, water	*Carex*	*aquatilis*	CRXAQ	CAAQ	CARAQU	VG
sedge, widefruit	*Carex*	*eurycarpa*	CRXEU	CAEU2	CAREUR	VG
sedge, woolfruit	*Carex*	*lasiocarpa*	CRXLC	CALA11	CARLAS	VG
seepweed, alkali	*Suaeda*	*fruticosa*	SUEFR	SUFR2	SUAMOQ	VF
seepweed, western	*Suaeda*	*occidentalis*	SUEOC	SUOC	SUAOCC	VF
sensitivebriar, catclaw	*Schrankia*	*nuttallii*	SCNNU	SCNU	SCHNUT	VF
shadscale	*Atriplex*	*confertifolia*	ATXCO	ATCO	ATRCON	VS
shattercane	*Sorghum*	*bicolor*	SORVU	SOBI2	SORBIC	VG
shattercane	*Sorghum*	*vulgare*	SORVU	SOVU2	SORBIC	VG
shepherd's-purse	*Capsella*	*bursa-pastoris*	CAPBP	CABU2	CAPBUR	VF
shinleaf	*Pyrola*	*rotundifolia*	PYWRO	PYRO	PYRROT	VF
sicklegrass, curved	*Parapholis*	*incurva*	PHOIN	PAIN	PARINC	VG

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sida, alkali	*Sida*	*hederacea*	SIDHE	SIHE8	SIDHED	VF
skeletonweed	*Lygodesmia*	*juncea*	LYGJU	LYJU	LYGJUN	VF
skeletonweed, rush	*Chondrilla*	*juncea*	CHOJU	CHJU	CHOJUN	VF
skullcap, marsh	*Scutellaria*	*galericulata*	SCDGA	SCGA	SCUGAL	VF
smartweed, dotted	*Polygonum*	*punctatum*	POLPT	POPU5	POLPUN	VF
smartweed, hedge	*Polygonum*	*scandens*	POLSD	POSC3	POLSCA	VF
smartweed, marshpepper	*Polygonum*	*hydropiper*	POLHY	POHY	POLHYD	VF
smartweed, mild	*Polygonum*	*hydropiperoides*	POLHP	POHY2	POLHYR	VF
smartweed, pale	*Polygonum*	*lapathifolium*	POLLA	POLA4	POLLAP	VF
smartweed, Pennsylvania	*Polygonum*	*pensylvanicum*	POLPY	POPE2	POLPEN	VF
smartweed, water	*Polygonum*	*amphibium*	POLAM	POAM8	POLAMP	VF
smartweed, water	*Polygonum*	*natans*	POLAM	PONA3	POLAMP	VF
smartweed, water	*Polygonum*	*coccineum*	POLCC	POCO8	POLAMP	VF
snakeroot, swamp	*Eupatorium*	*rugosum*	EUPRU	EURU6	EUPRUG	VF
snakeweed, broom	*Gutierrezia*	*sarothrae*	GUESA	GUSA2	GUTSAR	VS
snapdragon, dwarf	*Chaenorrhinum*	*minus*	CHNMI	CHMI	CHAMIN	VF
sneezeweed	*Achillea*	*ptarmica*	ACHPT	ACPT	ACHPTA	VF
sneezeweed, common	*Helenium*	*autumnale*	HENAU	HEAU	HELAUT	VF
sneezeweed, orange	*Dugaldia*	*hoopesii*	HENHO	DUHO	HELHOP	VF
sneezeweed, orange	*Helenium*	*hoopesii*	HENHO	HEHO5	HELHOP	VF
snowberry, common	*Symphoricarpos*	*albus*	SYPAL	SYAL	SYMALB	VS
snowberry, western	*Symphoricarpos*	*occidentalis*	SYPOC	SYOC	SYMOCC	VS
snow-on-the-mountain	*Euphorbia*	*marginata*	EPHMG	EUMA8	EUPMAR	VF
soldier, water	*Stratiotes*	*aloides*	STTAL	STAL6	STRALO	VF
sorrel, green	*Rumex*	*acetosa*	RUMAC	RUAC2	RUMACT	VF
sorrel, red	*Rumex*	*acetosella*	RUMAA	RUAC3	RUMACE	VF
sowthistle, annual	*Sonchus*	*oleraceus*	SONOL	SOOL	SONOLE	VF
sowthistle, marsh	*Sonchus*	*arvensis*	SONAU	SOARU	SONARV	VF
sowthistle, marsh	*Sonchus*	*uliginosus*	SONAU	SOUL5	SONARV	VF
sowthistle, perennial	*Sonchus*	*arvensis*	SONAR	SOAR2	SONARV	VF
sowthistle, spiny	*Sonchus*	*asper*	SONAS	SOAS	SONASP	VF
spatterdock, Rocky Mountain	*Nuphar*	*luteum*	NUPLP	NULUP	NUPLUT	VF
spatterdock, Rocky Mountain	*Nuphar*	*polysepalum*	NUPLP	NUPO2	NUPLUT	VF
spearmint	*Mentha*	*spicata*	MENSP	MESP3	MENSPI	VF
speedwell, common	*Veronica*	*officinalis*	VEROF	VEOF2	VEROFF	VF
speedwell, corn	*Veronica*	*arvensis*	VERAR	VEAR	VERARV	VF
speedwell, germander	*Veronica*	*chamaedrys*	VERCH	VECH	VERCHA	VF
speedwell, longleaf	*Veronica*	*longifolia*	VERLO	VELO2	VERLON	VF
speedwell, Persian	*Veronica*	*persica*	VERPE	VEPE3	VERPES	VF
speedwell, purslane	*Veronica*	*peregrina*	VERPG	VEPE2	VERPER	VF
speedwell, purslane	*Veronica*	*peregrina*	VERPX	VEPEX	VERPER	VF
speedwell, slender	*Veronica*	*filiformis*	VERFI	VEFI	VERFIL	VF
speedwell, thread stalk	*Veronica*	*filiformis*	VERFI	VEFI	VERFIL	VF
speedwell, thymeleaf	*Veronica*	*serpyllifolia*	VERSE	VESE	VERSER	VF
speedwell, water	*Veronica*	*anagallis-aquatica*	VERAA	VEAN2	VERANA	VF
spiderwort, tropical	*Commelina*	*benghalensis*	COMBE	COBE2	COMBEN	VF
spikerush, beaked	*Eleocharis*	*rostellata*	ELORO	ELRO2	ELEROS	VG
spikerush, blunt	*Eleocharis*	*obtusa*	ELOOB	ELOB2	ELEOBT	VG

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spikerush, creeping	*Eleocharis*	*palustris*	ELOPA	ELPA3	ELEPAL	VG
spikerush, dwarf	*Eleocharis*	*parvula*	ELPA5		ELEPAR	VG
spikerush, needle	*Eleocharis*	*acicularis*	ELOAC	ELAC	ELEACI	VG
spikerush, ovoid	*Eleocharis*	*obtusa*	ELOOB	ELOB2	ELEOBT	VG
spikeweed	*Hemizonia*	*pungens*	HEZPU	HEPU5	HEMPUN	VF
spinach, water	*Ipomoea*	*aquatica*	IPOAQ	IPAQ	IPOAQU	VF
sprangletop, bearded	*Diplachne*	*fascicularis*	LEFFA	DIFA4	LEPFAS	VG
sprangletop, bearded	*Leptochloa*	*fascicularis*	LEFFA	LEFA	LEPFAS	VG
sprangletop, Mexican	*Leptochloa*	*uninervia*	LEFUN	LEUN2	LEPUNI	VG
sprangletop, red	*Leptochloa*	*chinensis*	LEFCH	LECH2	LEPCHI	VG
spruce, white	*Picea*	*glauca*	PIEGA	PIGL	PICGLA	VT
spurge, creeping	*Chamaesyce*	*serpens*	EPHSN	CHSE4	EUPSEP	VF
spurge, creeping	*Euphorbia*	*serpens*	EPHSN	EUSE4	EUPSEP	VF
spurge, cypress	*Euphorbia*	*cyparissias*	EPHCY	EUCY2	EUPCYP	VF
spurge, leafy	*Euphorbia*	*esula*	EPHES	EUES	EUPESU	VF
spurge, netseed	*Euphorbia*	*spathulata*	EPHSQ	EUSP	EUPSPA	VF
spurge, nodding	*Chamaesyce*	*nutans*	EPHNU	CHNU9	EUPNUT	VF
spurge, nodding	*Euphorbia*	*nutans*	EPHNU	EUNU	EUPNUT	VF
spurge, petty	*Euphorbia*	*peplus*	EPHPE	EUPE6	EUPPEP	VF
spurge, plum-leafed	*Euphorbia*	*prunifolia*	EPHPR	EUPR5	EUPPRU	VF
spurge, ridgeseed	*Chamaesyce*	*glyptosperma*	EPHGL	CHGL13	EUPGLY	VF
spurge, ridgeseed	*Euphorbia*	*glyptosperma*	EPHGL	EUGL3	EUPGLY	VF
spurge, spotted	*Chamaesyce*	*maculata*	EPHMA	CHMA15	EUPMAU	VF
spurge, spotted	*Euphorbia*	*maculata*	EPHMA	EUMA7	EUPMAU	VF
spurge, spotted	*Euphorbia*	*supina*	EPHMA	EUSU	EUPMAU	VF
spurge, sun	*Euphorbia*	*helioscopia*	EPHHE	EUHE2	EUPHEL	VF
spurge, toothed	*Euphorbia*	*dentata*	EPHDE	EUDE4	EUPDEN	VF
spurry, corn	*Spergula*	*arvensis*	SPRAR	SPAR	SPEARV	VF
spurry, umbrella	*Holosteum*	*umbellatum*	HLOUM	HOUM	HOLUMB	VF
squirreltail	*Elymus*	*elymoides*	SITHY	ELEL5	SITHYS	VG
squirreltail	*Sitanion*	*hystrix*	SITHY	SIHY	SITHYS	VG
St. Johnswort, common	*Hypericum*	*perforatum*	HYPPE	HYPE	HYPPER	VF
star-flower	*Trientalis*	*borealis*	TNTBO	TRBO2	TRILAI	VF
Stark	*Arctoa*	*starkei*	ARST12		KIASTA	KI
star-of-Bethlehem	*Ornithogalum*	*umbellatum*	OTGUM	ORUM	ORNUMB	VF
star-of-Bethlehem, nodding	*Ornithogalum*	*nutans*	OTGNU	ORNU	ORNNUT	VF
starthistle, Iberian	*Centaurea*	*iberica*	CENIB	CEIB	CENIBE	VF
starthistle, purple	*Centaurea*	*calcitrapa*	CENCA	CECA2	CENCAL	VF
starthistle, yellow	*Centaurea*	*solstitialis*	CENSO	CESO3	CENSOL	VF
starwort, little	*Stellaria*	*graminea*	STEGR	STGR	STEGRA	VF
stickleaf, tenpetal	*Mentzelia*	*decapetala*	MNZDE	MEDE2	MENDEC	VF
stickleaf, whitestem	*Mentzelia*	*albicaulis*	MNZAL	MEAL6	MENALB	VF
stickseed, western	*Hackelia*	*floribunda*	HACFL	HAFL2	HACFLO	VF
sticktight, European	*Lappula*	*echinata*	LPLSQ	LAEC	LAPECH	VF
sticktight, western	*Lappula*	*redowskii*	LPLOC	LARE	LAPRED	VF
stinkgrass	*Eragrostis*	*cilianensis*	ERACN	ERCI	ERACIL	VG
stock, Malcolm	*Malcolmia*	*africana*	MAMAF	MAAF	MALAFR	VF
stonecrop, mossy	*Sedum*	*acre*	SEDAC	SEAC	SEDACR	VF

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strawberry, wild	*Fragaria*	*virginiana*	FRAVI	FRVI	FRAVIR	VF
sugarcane, wild	*Saccharum*	*spontaneum*	SACSP	SASP	SACSPO	VG
sumac, dwarf	*Rhus*	*copallina*	RHUCO	RHCO13	RHUCOP	VF
sumac, smooth	*Rhus*	*glabra*	RHUGL	RHGL	RHUGLA	VS
sumac, staghorn	*Rhus*	*typhina*	RHUTY	RHTY	RHUTYP	VS
sumpweed, poverty	*Iva*	*axillaris*	IVAAX	IVAX	IVAAXI	VF
sumpweed, rough	*Iva*	*ciliata*	IVACI	IVCI2	IVAANN	VF
sundrops, perennial	*Oenothera*	*perennis*	OEOPE	OEPE	OENPER	VF
sunflower, common	*Helianthus*	*annuus*	HELAN	HEAN3	HELANN	VF
sunflower, Maximilian	*Helianthus*	*maximilianii*	HELMA	HEMA2	HELMAX	VF
sunflower, prairie	*Helianthus*	*petiolaris*	HELPE	HEPE	HELPET	VF
sunflower, stiff	*Helianthus*	*rigidus*	HELRI	HERI2	HELRIG	VF
swainsonpea	*Sphaerophysa*	*salsula*	SWASA	SPSA3	SPHSAL	VF
swainsonpea	*Swainsona*	*salsula*	SWASA	SWSA2	SPHSAL	VF
swampcandle	*Lysimachia*	*terrestris*	LYSTE	LYTE2	LYSTER	VF
sweetclover, yellow	*Melilotus*	*officinalis*	MEUOF	MEOF	MELOFF	VF
sweetflag	*Acorus*	*calamus*	ACSCA	ACCA4	ACOCAL	VF
sweetroot, spreading	*Osmorhiza*	*chilensis*	OMRCH	OSCH	OSMCHI	VF
switchgrass	*Panicum*	*virgatum*	PANVI	PAVI2	PANVIR	VG
tabacco, tree	*Nicotiana*	*glauca*	NIOGL	NIGL	NICGLA	VS
tamarisk, Chinese	*Tamarix*	*chinensis*	TAACH	TACH2	TAMCHI	VS
tamarisk, smallflower	*Tamarix*	*parviflora*	TAAPA	TAPA4	TAMPAR	VS
tansy, common	*Tanacetum*	*vulgare*	CHYVU	TAVU	TANVUL	VF
tansymustard, pinnate	*Descurainia*	*pinnata*	DESPI	DEPI	DESPIN	VF
tansymustard, pinnate	*Descurainia*	*pinnata*	DESRB	DEPIB2	DESPIN	VF
tansymustard, Richardson	*Descurainia*	*richardsonii*	DESRI	DERI2	DESRIC	VF
tarragon	*Artemisia*	*dracunculus*	ARTDR	ARDR4	ARTDRA	VF
tarweed, cluster	*Madia*	*glomerata*	MADGL	MAGL2	MADGLO	VF
tarweed, coast	*Madia*	*sativa*	MADSA	MASA	MADSAT	VF
tarweed, palouse	*Amsinckia*	*retrorsa*	AMSRE	AMRE2	AMSRET	VF
tarweed, showy	*Madia*	*elegans*	MADEL	MAEL	MADELE	VF
tea, Labrador	*Ledum*	*groenlandicum*	LEDGR	LEGR	LEDGRO	VS
tea, Mexican	*Chenopodium*	*ambrosioides*	CHEAM	CHAM	CHEAMB	VF
teasel, common	*Dipsacus*	*fullonum*	DIWSI	DIFU2	DIPFUL	VF
teasel, common	*Dipsacus*	*sylvestris*	DIWSI	DISY	DIPFUL	VF
thimbleberry, western	*Rubus*	*parviflorus*	RUBPA	RUPA	RUBPAR	VS
thistle, barbwire Russian	*Salsola*	*paulsenii*	SASPA	SAPA8	SALPAU	VF
thistle, blessed	*Cnicus*	*benedictus*	CXDBE	CNBE	CNIBEN	VF
thistle, bull	*Cirsium*	*vulgare*	CIRVU	CIVU	CIRVUL	VF
thistle, Canada	*Cirsium*	*arvense*	CIRAR	CIAR4	CIRARV	VF
thistle, distaff	*Carthamus*	*lanatus*	CAULA	CALA20	CARLAN	VF
thistle, Flodman	*Cirsium*	*flodmanii*	CIRFL	CIFL	CIRFLO	VF
thistle, Indian	*Cirsium*	*edule*	CIRED	CIED	CIREDU	VF
thistle, Italian	*Carduus*	*pycnocephalus*	CRUPY	CAPY2	CARPYC	VF
thistle, leafy	*Cirsium*	*foliosum*	CIRFO	CIFO	CIRFOL	VF
thistle, musk	*Carduus*	*nutans*	CRUNU	CANU4	CARNUT	VF
thistle, Napa	*Centaurea*	*melitensis*	CENME	CEME2	CENMEL	VF
thistle, plumeless	*Carduus*	*acanthoides*	CRUAC	CAAC	CARACA	VF

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thistle, Russian	*Salsola*	*iberica*	SASKR	SAIB	SALIBE	VF
thistle, Scotch	*Onopordum*	*acanthium*	ONRAC	ONAC	ONOACA	VF
thistle, slenderflowered	*Carduus*	*tenuiflorus*	CRUTE	CATE2	CARTEU	VF
thistle, tall	*Cirsium*	*altissimum*	CIRAL	CIAL2	CIRALT	VF
thistle, wavyleaf	*Cirsium*	*undulatum*	CIRUN	CIUN	CIRUND	VF
thistle, welted	*Carduus*	*crispus*	CRUCR	CACR2	CARCRS	VF
thistle, yellowspine	*Cirsium*	*ochrocentrum*	CIROH	CIOC2	CIROCH	VF
thoroughwort, gland-bearing	*Ageratina*	*adenophora*	EUPAD	AGAD2	AGEADE	VF
thoroughwort, gland-bearing	*Eupatorium*	*adenophorum*	EUPAD	EUAD2	EUPADE	VF
threeawn, red	*Aristida*	*longiseta*	ARKLS	ARLO3	ARILON	VG
threesquare, common	*Scirpus*	*americanus*	SCPAM	SCAM2	SCIAME	VG
threesquare, Olney	*Scirpus*	*olneyi*	SCPOL	SCOL	SCIAME	VG
thyme, basil	*Satureja*	*acinos*	STIAC	SAAC	SATACI	VF
thyme, creeping	*Thymus*	*serpyllum*	THYSE	THSE	THYSER	VF
tickseed, hyssopleaf	*Corispermum*	*hyssopifolium*	CRQHY	COHY	CORHYS	VF
timothy	*Phleum*	*pratense*	PHLPR	PHPR3	PHLPRA	VG
toadflax, Dalmatian	*Linaria*	*dalmatica*	LINDA	LIDA	LINDAL	VF
toadflax, Dalmatian	*Linaria*	*genistifolia*	LINDA	LIGE	LINDAL	VF
toadflax, oldfield	*Linaria*	*canadensis*	LINCA	LICA6	LINCAN	VF
toadflax, Texas	*Linaria*	*texana*	LINTX	LITE5	LINCAN	VF
toadflax, yellow	*Linaria*	*vulgaris*	LINVU	LIVU2	LINVUL	VF
toothcup	*Rotala*	*ramosior*	ROTRA	RORA	ROTRAM	VF
trefoil, birdsfoot	*Lotus*	*corniculatus*	LOTCO	LOCO6	LOTCOR	VF
trumpetcreeper	*Campsis*	*radicans*	CMIRA	CARA2	CAMRAD	VS
tumblegrass	*Schedonnardus*	*paniculatus*	SCEPA	SCPA	SCHPAN	VG
tumbleweed	*Salsola*	*vermiculata*	SASVE	SAVE6	SALVER	VF
turkeyberry	*Solanum*	*torvum*	SOLTO	SOTO4	SOLTOR	VF
twitch, black	*Alopecurus*	*myosuroides*	ALOMY	ALMY	ALOMYS	VG
valerian, common	*Valeriana*	*officinalis*	VALOF	VAOF	VALOFF	VF
velvetgrass, common	*Holcus*	*lanatus*	HOLLA	HOLA	HOLLAN	VG
velvetgrass, German	*Holcus*	*mollis*	HOLMO	HOMO	HOLMOL	VG
velvetleaf	*Abutilon*	*theophrasti*	ABUTH	ABTH	ABUTHE	VF
ventenata	*Ventenata*	*dubia*	VETDU	VEDU	VENDUB	VG
venuslookingglass, common	*Triodanis*	*perfoliata*	TJDPE	TRPE4	TRIPER	VF
vernalgrass, sweet	*Anthoxanthum*	*odoratum*	AOXOD		ANTODO	VG
vervain, blue	*Verbena*	*hastata*	VEBHA	VEHA2	VERHAS	VF
vervain, hoary	*Verbena*	*stricta*	VEBST	VEST	VERSTR	VF
vervain, prostrate	*Verbena*	*bracteata*	VEBBR	VEBR	VERBRA	VF
vervain, white	*Verbena*	*urticifolia*	VEBUR	VEUR	VERURT	VF
vetch, bird	*Vicia*	*cracca*	VICCR	VICR	VICCRA	VF
vetch, common	*Vicia*	*sativa*	VICSA	VISA	VICSAT	VF
vetch, hairy	*Vicia*	*villosa*	VICVI	VIVI	VICVIL	VF
vetch, sparrow	*Vicia*	*tetrasperma*	VICTE	VITE	VICTET	VF
vetch, tiny	*Vicia*	*hirsuta*	VICHI	VIHI	VICHIR	VF
violet, common blue	*Viola*	*papilionacea*	VIOPP	VIPA5	VIOPRT	VF
violet, field	*Viola*	*arvensis*	VIOAR	VIAR	VIOARV	VF
violet, lanceleaf	*Viola*	*lanceolata*	VIOLA	VILA4	VIOLAN	VF
violet, sweet	*Viola*	*odorata*	VIOOD	VIOD	VIOODO	VF

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Virginia-creeper	*Parthenocissus*	*quinquefolia*	PRTQU	PAQU2	PARQUI	VS
wahoo, eastern	*Euonymus*	*atropurpureus*	EUOAT	EUAT3	EUOATR	VS
wallflower, bushy	*Erysimum*	*repandum*	ERYRE	ERRE4	ERYREP	VF
wallflower, western	*Erysimum*	*asperum*	ERYAS	ERAS2	ERYASP	VF
waterbuttercup, white	*Ranunculus*	*aquatilis*	RANTR	RAAQC2	RANAQU	VF
waterbuttercup, yellow	*Ranunculus*	*flabellaris*	RANFB	RAFL	RANFLB	VF
watercress	*Nasturtium*	*officinale*	NAAOF	NAOF	NASOFF	VF
watercress	*Rorippa*	*nasturtium-aquaticum*	NAAOF	RONA2	NASOFF	VF
waterfern, feathered	*Azolla*	*pinnata*	AZOPI	AZPI	AZOPIN	VE
waterhemlock, spotted	*Cicuta*	*maculata*	CIUMC	CIMA2	CICMAC	VF
waterhemlock, western	*Cicuta*	*douglasii*	CIUDO	CIDO	CICDOU	VF
waterhemp, common	*Amaranthus*	*rudis*	AMATA	AMRU	AMARUD	VF
waterhemp, tall	*Amaranthus*	*tuberculatus*	AMATU	AMTU	AMATUB	VF
waterhyacinth	*Eichhornia*	*crassipes*	EICCR	EICR	EICCRA	VF
waterhyacinth, anchored	*Eichhornia*	*azurea*	EICAZ	EIAZ2	EICAZU	VF
waterhyacinth, peacock	*Eichhornia*	*azurea*	EICAZ	EIAZ2	EICAZU	VF
waterhyssop, disc	*Bacopa*	*rotundifolia*	BAORO	BARO	BACROT	VF
waterlily, fragrant	*Nymphaea*	*odorata*	NYMOR	NYOD	NYMODO	VF
waterlily, yellow	*Nuphar*	*luteum*	NUPLU	NULU	NUPLUT	VF
watermeal, common	*Wolffia*	*columbiana*	WOLCO	WOCO	WOLCOL	VF
watermeal, spotted	*Wolffia*	*punctata*	WOLPU	WOPU2	WOLPUN	VF
watermilfoil, eastern	*Myriophyllum*	*pinnatum*	MYPPI	MYPI	MYRPIN	VF
watermilfoil, Eurasian	*Myriophyllum*	*spicatum*	MYPSP	MYSP2	MYRSPI	VF
watermilfoil, northern	*Myriophyllum*	*exalbescens*	MYPSE	MYEX	MYRSPI	VF
watermilfoil, variable	*Myriophyllum*	*heterophyllum*	MYPHE	MYHE2	MYRHET	VF
watermilfoil, whorled	*Myriophyllum*	*verticillatum*	MYPVE	MYVE3	MYRSPI	VF
waterparsnip	*Sium*	*suave*	SIUSU	SISU2	SIUSUA	VF
waterplantain, common	*Alisma*	*plantago-aquatica*	ALSPA	ALPL	ALIPLA	VF
waterplantain, common	*Alisma*	*triviale*	ALSPA	ALTR7	ALIPLA	VF
waterplantain, narrowleaf	*Alisma*	*gramineum*	ALSGR	ALGR	ALIGRA	VF
waterpod	*Ellisia*	*nyctelea*	ELSNY	ELNY	ELLNYC	VF
waterpurslane	*Ludwigia*	*palustris*	LUDPA	LUPA	LUDPAL	VF
watershield	*Brasenia*	*schreberi*	BRESC	BRSC	BRASCH	VF
waterstargrass	*Heteranthera*	*dubia*	HETDU	HEDU2	ZOSDUB	VF
waterstargrass	*Zosterella*	*dubia*	HETDU	ZODU	ZOSDUB	VF
waterstarwort	*Callitriche*	*palustris*	CLTPA	CAPA52	CALVER	VF
waterstarwort	*Callitriche*	*verna*	CLTPA	CAVE2	CALVER	VF
waterstarwort, European	*Callitriche*	*stagnalis*	CLTST	CAST	CALSTA	VF
waterweed, longsheath	*Elodea*	*longivaginata*	ELDLO	ELLO2	ELOBIF	VF
waterweed, western	*Anacharis*	*canadensis*	ELDCA		ELOCAN	VF
waterwort	*Elatine*	*triandra*	ELTTR	ELTR	ELATRI	VF
wedgescale, prairie	*Sphenopholis*	*obtusata*	SFPOB	SPOB	SPHOBT	VG
wheatgrass	*Agropyron*	*pauciflorum*	AGRTR	AGPA15	AGRPAU	VG
wheatgrass, slender	*Agropyron*	*trachycaulum*	AGRTR	AGTR	AGRCAN	VG
wheatgrass, slender	*Elymus*	*trachycaulus*	AGRTR	ELTR7	AGRCAN	VG
wheatgrass, tall	*Agropyron*	*elongatum*	AGREL	AGEL3	AGRELO	VG
whitetop, hairy	*Cardaria*	*pubescens*	CADPU	CAPU6	CARPUB	VF
whitlowgrass, spring	*Draba*	*verna*	ERPVE	DRVE2	DRAVER	VF

V = Vascular E = Fern F = Forb G = Graminoid S = Shrub T = Tree

Appendix 13

Common Name	Genus	Species/ Authority	Bayer or WSSA ID	National Plants NRCS ID	Region 1 USFS ID	Plant Type *
whitlowgrass, spring	*Erophila*	*verna*	ERPVE	ERVE8	DRAVER	VF
whitlowgrass, wood	*Draba*	*nemorosa*	DRBNE	DRNE	DRANEM	VF
widgeongrass	*Ruppia*	*maritima*	RUPMA	RUMA5	RUPMAR	VF
wildbean, smoothseed	*Strophostyles*	*leiosperma*	SRTLE	STLE6	STRLEI	VF
wildrice, annual	*Zizania*	*aquatica*	ZIZAQ	ZIAQ	ZIZAQU	VG
wildrye, Virginia	*Elymus*	*virginicus*	ELYVI	ELVI3	ELYVIR	VG
willow, coyote	*Salix*	*exigua*	SAXEX	SAEX	SALEXI	VS
willow, crack	*Salix*	*fragilis*	SAXFR	SAFR	SALFRA	VT
willow, laurel	*Salix*	*pentandra*	SAXPE	SAPE4	SALPEN	VS
willow, prairie	*Salix*	*humilis*	SAXHM	SAHU2	SALHUM	VS
willow, sandbar	*Salix*	*interior*	SAXIN	SAIN3	SALEXI	VS
willow, weeping	*Salix*	*babylonica*	SAXBA	SABA2	SALBAB	VT
willow, white	*Salix*	*alba*	SAXAL	SAAL2	SALALB	VT
willowweed, American	*Epilobium*	*adenocaulon*	EPIAC	EPAD	EPIPAN	VF
willowweed, panicle	*Epilobium*	*paniculatum*	EPIPC	EPPA2	EPIPAN	VF
windmillgrass, tumble	*Chloris*	*verticillata*	CHRVE	CHVE2	CHLVER	VG
wintercress, early	*Barbarea*	*verna*	BARVE	BAVE	BARVER	VF
wirelettuce, slender	*Stephanomeria*	*tenuifolia*	STOTE	STTE2	STETEN	VF
witchgrass	*Panicum*	*capillare*	PANCA	PACA6	PANCAP	VG
woad, dyer's	*Isatis*	*tinctoria*	ISATI	ISTI	ISATIN	VF
woodbine	*Lonicera*	*periclymenum*	LONPE	LOPE4	LONPER	VS
woodrush, common	*Luzula*	*multiflora*	LUUMU	LUMU2	LUZCAM	VG
woodsorrel, creeping	*Oxalis*	*corniculata*	OXACO	OXCO	OXACOR	VF
woodsorrel, European	*Oxalis*	*europaea*	OXAEU	OXEU2	OXADIL	VF
woodsorrel, European	*Oxalis*	*stricta*	OXAEU	OXST	OXASTR	VF
woodsorrel, yellow	*Oxalis*	*dillenii*	OXAST	OXDI2	OXADIL	VF
wormwood, absinth	*Artemisia*	*absinthium*	ARTAB	ARAB3	ARTABS	VF
wormwood, annual	*Artemisia*	*annua*	ARTAN	ARAN3	ARTANN	VF
wormwood, biennia	*Artemisia*	*biennis*	ARTBI	ARBI2	ARTBIE	VF
wormwood, Louisiana	*Artemisia*	*ludoviciana*	ARTLU	ARLU	ARTLUD	VF
wormwood, southern	*Artemisia*	*abrotanum*	ARTAT	ARAB2	ARTABR	VS
woundwort	*Stachys*	*palustris*	STAPA	STPA	STAPAL	VF
yarrow, common	*Achillea*	*millefolium*	ACHLA	ACMIL3	ACHMIL	VF
yarrow, common	*Achillea*	*millefolium*	ACHMI	ACMI2	ACHMIL	VF
yarrow, western	*Achillea*	*lanulosa*	ACHLA	ACLA5	ACHMIL	VF
yellowcress, marsh	*Rorippa*	*islandica*	RORIS	ROIS2	RORPAL	VF
yellowcress, spreading	*Rorippa*	*sinuata*	RORSN	ROSI2	RORSIN	VF
yucca, Great Plains	*Yucca*	*glauca*	UCCGC	YUGL	YUCGLA	VS
	Alliaria	*officinalis*	ALAPE	ALOF3	ALLPET	VF
	Allium	*columbianum*	ALCO2		ALLDOU	VF
	Ambrosia	*grayi*	AMBGR	AMGR5	AMBGRA	VF
	Anthriscus	*caucalis*	ANRCA		ANTCAU	VF
	Anthriscus	*scandicina*	ANRCA		ANTCAU	VF
	Armoracia	*lapathifolia*	ARLA23		ARMRUS	VF
	Botrychium	*ascendens*	BOAS2		BOTASC	VE
	Bryum	*pseudotriquetrum*	BRPS70		BRYPSE	NM
	Centaurea	*trichocephala*	CENTC	CETR12	CENTRC	VF
	Hoffmanseggia	*densiflora*	HOFDE	HODE	HEFDEN	VF

V = Vascular E = Fern F = Forb G = Graminoid S = Shrub T = Tree

Appendix 13

Common Name	Genus	Species/ Authority	Bayer or WSSA ID	National Plants NRCS ID	Region 1 USFS ID	Plant Type *
	Hordeum	*distichon*	HORDI	HODI2	HORDIS	VG
	Jussiaea	*repens*	LUDPE	JUREP2	JUSREP	VF
	Kickxia	*spuria*	KICSP	KISP	KICSPU	VF
	Lepyrodiclis	*holosteoides*	LDCHO	LEHO7	LEPHOL	VF
	Limnobium	*spongia*	LIMSP	LISP2	LIMSPO	VF
	Melilotus	*indica*	MEUIN	MEIN14	MELINI	VF
	Physalis	*pubescens*	PHYPU	PHPU7	PHYPUB	VF
	Pylaisiella	*selwynii*	PYSE7		PYLSEL	NM
	Sisymbrium	*sophia*	DESSO	SISO4	SISSOP	VF
	Tamarix	*odessana*	TAARA		TAMRAM	VS
	Tamarix	*pentandra*	TAARA	TAPE	TAMRAM	VS
			Only weeds, approximately 3,000 species	All plants, 21,000 species	All plants, approximately 6,000 species	

V = Vascular E = Fern F = Forb G = Graminoid S = Shrub T = Tree

Appendix 14

Sources of Information and Resources

Specific information on weed management in your state can be gathered from a number of sources. Using the state contact number found in Appendix 2, compile a list of resources for your area. Contacts may include representatives of the state or county Extension Service, Agricultural Experiment Station, county weed districts, land grant university, State weed control association, National Park Service, NRCS, U.S. Forest Service, Bureau of Land Management, and Bureau of Indian Affairs.

SUGGESTED REFERENCES FOR PLANT IDENTIFICATION

Common Montana Range Plants. Montana State University Range Science Club. 2nd Edition., Robert R. Yeager, Wayne C. Leininger, and Donald E. Ryerson. 110 pages.

Eastern Washington Range Plants. 1984. Ed 1302. Ben F. Roche', Jr. and Cindy Jo Talbott. Washington State University Cooperative Extension Service. 62 pages.

Flora of the Great Plains. 1986. The Great Plains Flora Association. Ronald L. McGregor, Coordinator. University Press of Kansas. 1392 pages.

Flora of the Pacific Northwest. 1973. C. Leo Hitchcock and Arthur Cronquist. University of Washington Press. 730 pages.

Intermountain Flora: Vascular Plants of the Intermountain West, USA. Volume Six; the Monocotyledons. 1977. Arthur Cronquist, Arthur H. Holmgren, Noel H. Holmgren, James Reveal, Patricia K. Holmgren. Published for the New York Botanical Garden by Columbia University Press, New York. 584 pages.

Nebraska Weeds. 1994. Published by the State of Nebraska, Department of Agriculture, Weed Division, State Capitol, Lincoln, NE 68509. 589 pages.

Northwest Weeds. 1990. R. J. Taylor. Mountain Press Publishing Company. 177 pages.

Plants of South Dakota Grasslands: A Photographic Study. 1982. Bulletin 566. Agriculture Experiment Station, South Dakota State University, Brookings, South Dakota 57007. James R. Johnson and James T. Nichols. 166 pages.

Appendix 14

Poisonous Plants of the United States. 1939. W. C. Muenscher. MacMillan Publishing Company. 277 pages.

Poisonous Range Plants in Montana. 1977. Montana State University Cooperative Extension Service. Wayne C. Leininger, John E. Taylor, and Carl L. Wambolt. 60 pages.

Prairie Wildflowers; Showy Wildflowers of the Plains, Valleys, and Foothills in the Northern Rocky Mountain States. 1986. Dr. Dee Strickler. Published by the Flower Press, Columbia Falls, MT 80 pages.

Trees and Shrubs in Montana. 1985. Bulletin 323. Montana State University Cooperative Extension Service. 74 pages.

Vascular Plants of Montana. 1984. Robert D. Dorn. Mountain West Publishing. 276 pages.

Weeds. W. C. Muenscher. 1955. Comstock Publishing. 586 pages.

Weeds & Poisonous Plants of Wyoming and Utah. 1987. Thomas D. Whitson. Cooperative Extension Service, College of Agriculture, University of Wyoming. F. e. Busby, Director. 282 pages.

Weeds of Alberta. Alberta Environmental Center, Alberta Agriculture. W. A. Stearman, Weed Control and Field Services Branch, Alberta Agriculture. 209 pages.

Weeds of Eastern Washington and Adjacent Areas. 1972. X. M. Gaines, D. G. Swan. Camp-Na-Bor-Lee Association, Inc. 349 pages.

Weeds of the West. 1991. T. D. Whitson, L. C. Burrill, S. A. Dewey, D. W. Audney, B. e. Nelson, R. D. Lee, R. Parker. Western Society of Weed Science. 630 pages.

Wildflowers, Grasses and other Plants of the North Plains and Black Hills. 1983. Theodore Van Bruggen, Biology Department, University of South Dakota. 3rd Edition. 96 pages.

Wildflowers of the West. 1979. Edith S. Kinucan and Penney R. Brons. Published by Kinucan & Brons, Box 765, Ketchum, Idaho 83340. 130 pages.

Appendix 15

Funding Sources

NATIONAL AND REGIONAL FUNDING SOURCES

USDA NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM [NRICGP]
http://www.reeusda.gov/crgam/nri/

The NRICGP also is the office of the Cooperative State Research, Education, and Extension Service [CSREES] of the USDA charged with funding research on key problems of national and regional importance in biological, environmental, physical, and social sciences relevant to agriculture, food, and the environment on a peer-reviewed, competitive basis. Competition is open to scientists at all academic institutions, Federal research agencies, private and industrial organizations, and those individuals qualified but not affiliated with one of the aforementioned organizations.

NATIONAL FISH AND WILDLIFE FOUNDATION [NFWF]
http://www.nfwf.org/about_nfwf.htm

The NFWF has a unified request each year for fish, wildlife, and conservation proposals to be funded under specific partnership programs between the NFWF and various federal agencies. Each partnership program has a unique set of partners and objectives. The “Pulling Together” program is specifically designed to fund cooperative weed management projects. The proposal deadline is November 2 each year. There are many different grants available each year. Contact them for additional information for on specific grants.

NORTH AMERICAN WETLANDS CONSERVATION ACT GRANT INFORMATION [NAWCA]

NAWCA grants are designed to protect and restore significant wetlands and associated uplands in the United States, Canada, and Mexico. The primary objective is to generate partnerships to protect and restore ecosystems for migratory birds and fish and wildlife dependent on wetlands through matching funds. There are many different grants available each year. Contact them for additional information on specific grants.

Appendix 15

Request application materials or information from:

North American Wetlands Conservation Council Coordinator North American Waterfowl and Wetlands Office
U.S. Fish and Wildlife Service
4401 North Fairfax Drive, Room 110
Arlington, VA 22203
(703) 358-1784 (phone)
(703) 358-2282 (fax)
r9arw_nawwo@mail.fws.gov
www.fws.gov/r9nawwo/nawcahp

National Park Service
4598 MacArthur Blvd., N.W.
Washington, D.C. 20007
202-342-1443, ex, 218

NATIONAL BIOLOGICAL CONTROL INSTITUTE [NBCI]

The NBCI Facilitation Grant program funds projects that facilitate information, education, or communication needs of the biological control community. For additional information contact:

Biological Scientist
USDA, APHIS, PPQ, CPHST
National Biological Control Institute (NBCI)
4700 River Road, Unit 5
Riverdale, MD 20737-1229
Phone: (301) 734-4329
Fax: (301) 703-7823

STATE FUNDING SOURCES

Contact your state Department of Agriculture or Department of Natural Resources.

Contact local conservation organizations.