Vegetation Management Planning Guide:

Planning and Implementation for Developed Sites in Region 2

United States Department of Agriculture

Forest Service

P.O. Box 25127
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Foreword

I am pleased to announce the release of this *Vegetation Management Planning Guide* for developed recreation and administrative sites of the Rocky Mountain Region. This document, created by an interdisciplinary cadre of Region 2 employees, provides comprehensive, practical information on planning and implementing vegetation management for our most valuable areas.

Safety of the visiting public and our employees is our utmost concern. Defective, potentially hazardous trees must be addressed. Plans must be in place for the long-term maintenance of desired vegetation conditions, including regeneration. Years of successful fire suppression efforts have altered natural vegetation patterns and added to wildfire severity throughout the West. Vegetation management is key to providing sound protection practices in our developed recreation and administration sites. Furthermore, it demonstrates our continued commitment to the principles of FIREWISE by proactively demonstrating defensible space practices. Site management needs to include active vegetation prescriptions that address the growing threat to our facilities and to protect unique site characteristics. Vegetation management does not end with the boundaries of the site and we encourage efforts to safeguard the public and sites by extending our efforts to include the reasonable surroundings of the site characteristics.

This guide provides a proactive approach to integrated management that I hope all of you will embrace. I encourage you to use this guide to develop and implement vegetation management plans for our World Class Recreation and Administrative sites. During our forest integrated resource reviews, we will be looking for vegetation management plans and their implementation in developed recreation and administrative sites. As with the general public, we continue to learn about the impacts of our management emphasis and activities. As a Region we will build upon this *Guide* and amend it as appropriate.

Rick Cables

Regional Forester
Rocky Mountain Region

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Introduction

Living trees and other vegetation make our developed areas attractive, useful, and valuable. But such things don't just happen. They're planned.

This guide provides you with the tools and information you need to formulate, implement, and monitor long-range vegetation management plans for National Forest System lands, including:

- Campgrounds;
- Trailheads;
- Points of interest, overlooks;
- Picnic/day use areas;
- Administrative sites;
- Summer homes;
- Ski Areas;
- Lodges;
- Interpretive sites and visitor centers.

The principles outlined in this document can also be used to design management actions for wildland urban interfaces.

Our goal is to maintain the quality of our developed areas well into the future. To do that we must ensure that the vegetation growing on and around these areas is what we want, that it provides the features we have grown to expect, and that it is sustainable well into the future.

Often, vegetation management has been limited to periodic hazard tree removal. Important as this is, without an organized plan to replace lost trees, the areas will degrade and become less functional and attractive. There is no quick way to stop and reverse such a decline. After all, there is no quick and easy way to "grow" trees. Hence, your tree replacement plan must be quite forward looking and comprehensive. It must look far into the future and take many things into account, including the land outside the immediate boundaries of the site you are managing, growing conditions, possibilities for large scale disturbances, and the expectations and demands placed on the vegetation by people and wildlife.

Management goals for vegetation might include visuals, shade, screening, safety (be free of trees that pose unacceptable safety hazards) and resiliency (be resistant to wildfires, insects, disease and drought). To meet goals requires careful thought, an interdisciplinary approach to planning and implementation, and a long-term vision.

This guide will help get you there.

Chapter 1

GETTING STARTED:

Guidelines for preparing a Vegetation Management Plan

This chapter will walk you through the process. of putting together a comprehensive Vegetation Management Plan (VMP).

THE PLANNING PROCESS

Putting together a good VMP is a seven step process.

1. Compile and assess data that includes:
   a. Physical site conditions
   b. Vegetation assessment (formal stand exam or informal inventory)
   c. Disease and insect site visits
   d. Hazard tree surveys
   e. Fuels and defensible space
   f. History of vegetation management
   g. Physical improvements and uses
2. Describe desired future conditions.
3. Compare existing conditions to desired future conditions.
4. Identify alternative methods to achieve future conditions.
5. Select an alternative and outline actions.
6. Implement actions.
7. Monitor actions.

1. COMPILE AND ASSESS DATA

You should compile as much data as possible about your site and the surrounding area *before* you begin writing your plan. But don't try to locate all the data yourself. Rather, take a team approach. Call on the experts for help, the recreation specialists, engineers, archaeologists, rangeland management specialists, silviculturists, pathologists, fire/fuel management specialists, biologists, hydrologists, etc. The team approach will make your job easier, save you a lot of time, promote goodwill, create a sense of "ownership" of the VMP, and most importantly, result in a superior product.

Your data assessment should include a summary of all the relevant information available for the area to be managed. Include all important physical data, vegetation attributes (density, composition, age, etc.), insect and disease activity studies, results of hazard tree surveys, types and levels of use, lists and discussions of all past and current problems and issues, and an estimate of the area's intrinsic value. Make sure that the area assessed includes a large enough area to identify threats from large scale disturbance events such as fire and insects.

1. COMPILE AND ASSESS DATA, cont.

1a. Physical conditions

This is your starting point. Everything builds from here. Your description of the physical area should contain basic information, such as location, improvements that have been made to it, how it is used, etc. Here is a helpful list of items to include.

- Legal description
- Agency, permit holder or concessionaire operation
- Elevation
- Aspect
- Elevation
- Soils description
- Weather (wind patterns, precipitation)
- Hydrology, drainage
- Fire regime and fuels conditions

1.b. Vegetation assessment

Before you conduct an inventory of the vegetation, check with the members of your district timber staff. They should be able to tell you if formal stand exam information is on file for your site. If so, it will provide summary data including such things as structure (density, age, size classes), composition (% of tree species present), and growth and mortality rates.

If a stand exam is not on file, contact your timber staff to help you conduct one or complete an informal inventory. Be sure to gather information about the condition of the understory vegetation while doing the inventory.

Formal stand exams and hazard tree surveys will provide you with the most informative descriptions of your areas. However, sometimes situations are such that it is not necessary to conduct such exams and surveys on your sites. In these situations, you'll want to do an informal assessment of vegetation conditions, and chances are good you will have to conduct the assessment yourself.

The following list will help you formulate your description. Items 1 through 6 will apply to all sites; some but not necessarily all of items 7 through 18 will apply to your site. Use items 7 through 18 as guides and add your own items wherever appropriate.

1. Dominant tree species (list) _____ _____.
2. Stand structure (one story or mixed) . _____ _____
3. Understory species (list)._____
4. General over-story condition _____ % ground cover _____.
5. General under-story condition _____ % ground cover _____.
6. General observations _____ _____
7. Number/percent of dying trees ____ ____%
8. Natural seedling establishment ____little/none _____adequate

   If little/none, is condition due to human traffic patterns of use? ____yes ____no
9. Trees show signs of heavy site use, i.e., ____ wounds ____ stress ____soil compaction
10. Signs of insect and disease infestations, i.e., _____beetle outbreaks _____ root disease

    (Insect infestations often are a sign of an aging tree or stand.)
11. Damage due to beavers and large ungulates such as elk and livestock. ___yes ___no
12. Vegetation on site is less diverse (altered) than the natural condition. ___yes
13. (Less diversity could indicate the site is at a higher risk of pest infestation and fire.)
14. Fuel loads are increasing around the site. ___yes ___no
15. Weeds are present. ___yes ___no
16. Weed types (list). _____ _____
17. Ease of road and spur maintenance. Vegetation has overgrown the road or spur right-of-way. ___yes ___no
18. Vegetation meets desired conditions described in land management plans. ___yes ___no

1.c. Disease and insect site visits

As part of the vegetation assessment process, we recommend you invite a specialist from Forest Health Management to visit your site and prepare a brief report describing the disease, insect, and stand conditions that could cause problems. Unless extensive studies are required, forest health specialists cover their own salary and travel costs. Ask the specialist to include in the report any recommendations to reduce current and future disease and insect damage. If warranted, a more detailed evaluation could be conducted. (*See Appendix B*)

***Figure 1**. Armillaria root disease creating hazard situations in lodgepole pine.*

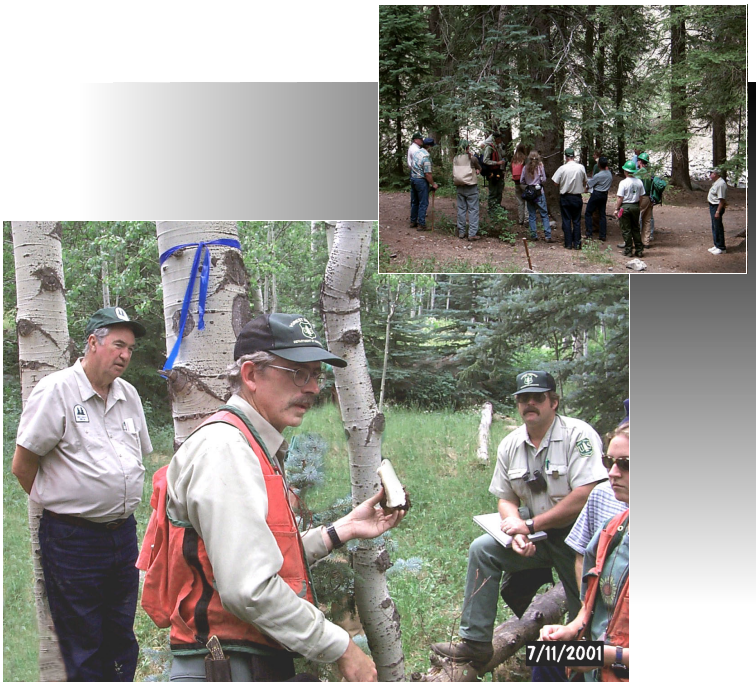

***Figure 2**. Hazard tree training is offered regularly. Dr. James Worrall (R2) center.*

1.d. Hazard tree surveys

Your VMP should seek to establish an acceptable level of risk for hazard trees. Your knowledge, judgment, common sense, and experience are very important to determining just what that level should be. Every tree in the proximity of humans and capital improvements has the potential to cause damage or injury. Diseased, insect infested, and damaged trees pose significantly higher risks to property and humans. Because hazard tree surveys are integral to your VMP, they should be completed to identify higher risk trees and provide details of how you intend to manage them. When conducting the survey, you should:

- Inspect each tree within striking distance of people and property;
- Map the physical location of each tree;
- Record data on each tree's condition. Decisions made to treat specific trees will be based on the data collected.

(For a more complete discussion of Hazard Trees see *Appendix B*.)

***Figure 3**. Ganoderma root disease causes living aspen to fail. Aspens have relatively short life spans, and are susceptible to many defects and diseases. Hence, long-range Regional policy (Forest Service Manual: R2 Supplement 2333.48) is directed toward replacing aspen with other species on developed sites.*

1.e. Fuels and defensible space

Evaluating and reducing fire hazard and risk on developed areas is our responsibility. Ironically, though

1.e. Fuels and defensible space, cont.

Forest Service-owned and managed developments represent substantial capital investment, they have routinely been *excluded* from fuels reduction and other forestry projects.

Even when fuels-reduction projects are considered or implemented, it's sometimes difficult to differentiate vegetative screening and other desirable landscape attributes from fuels, i.e., *Do those shrubs warrant the fire hazard risk they present?* In order to answer questions like that, you'll have to evaluate the role (value) and risk vegetation plays both within the developed site and on the larger landscape beyond it.

***Figure 4**: Stepping back for the bigger picture*

Fuels

Criteria to consider while evaluating fire hazards include forest structure and type, topography, fire history, fire regime, climate, etc. Of these, only forest structure and total amount of fuel is within our control: we can't stop fires by modifying structure and fuels, but we can minimize fires adverse effects.

Conducting a fuels assessment must include an inventory of fuels in and around the area to be protected. A fuels assessment presents an excellent opportunity for you to involve your forest or district fuels specialist and silviculturist in your VMP.

Of great concern are "ladder fuels", which are comprised of all types of vegetation between the forest floor and the lower limbs of the overstory trees. These fuels can be highly combustible and can provide a route for flames to move from the ground into the overstory.

The more dense the overstory, the quicker the fire will spread, and the more difficult it will be to contain.

Defensible space

In order to protect firefighters and capital improvements you must provide defensible space against the advance of wildfires. An exhaustive list of actions can be found on the Firewise website, http://www.firewise.org. Following is a list of actions that can help you make forested areas more defensible.

- Remove all dead trees and shrubs.
- Prune branches to a height of between eight and ten feet above the ground.
- Where feasible, thin trees to provide 30 feet or more space between crowns.
- Remove all trees and shrubs within 30 feet of structures.
- Remove branches or trees within arcing distance of power lines.
- Remove ladder fuels (small trees and shrubs) growing under larger trees.
- Provide at least ten to 15 feet of separation between islands or groups of trees or shrubs.
- Trim grasses regularly.
- Apply appropriate treatments to control weeds such as cheat grass, as they may be more flammable than the vegetation they displace.
- Maintain developed travel ways as fuel breaks and trim, thin or remove encroaching trees and shrubs.
- Apply appropriate treatments in surrounding areas to reduce fire intensities adjacent to the area you want to protect.

***Figure 5:** Remove ladder fuels, retain aspen*

It is also necessary to maintain defensible space in non-treed areas. Cheatgrass fires produce flame

***Figure 6**: Nebraska prairie fires can travel 65 miles a day.*

lengths up to eight feet, and sagebrush fires can produce flame lengths to 60 feet. Cheatgrass and sagebrush fires can consume up to 6,000 acres per hour.

1.f. History of vegetation management

Although not essential, the history of past management will help you understand the need for periodic maintenance and past investments that may need to be protected. Your vegetation management plan should include a brief description of previous vegetation management activities that have been undertaken on both the overstory and understory vegetation. That said, it is not likely a full, documented history of such activities exists for your site. So after a records search, you may have to contact employees on the district and ask them what they know. Here are some examples of common vegetation management activities.

- Hazard tree removals.
- Transplants (species, numbers and age).
- Vegetation protection (e.g. screening boles for beavers).
- Fuel reduction.
- Wildlife enhancement projects.
- Thinning.
- Pruning.
- Treatment of weeds.
    - Programmatic environmental assessment for treatment of noxious weeds.
- Seeding of grasses and forbs.
- Weed eating/mowing.
- Irrigation.
- Mulch, topsoil.
- Fertilizer.
- Herbicide applications.
- Insecticide applications.

1.g. Physical improvements and uses

Here is a list of other factors to include in your vegetation management plan.

- Year facilities were constructed
- Type and amount of use
- Maps of the site/area
- Long-range plans for facilities
- Seasons of use
- Number and types of improvements, i.e., buildings, campsites, toilets, etc.
- Types and locations of utilities
- Dollar value of property/structures
- Planned/proposed capital improvement projects
- Types of construction re: shake shingles, fire resistant walls etc.
- Wildlife use
- Livestock use
- Aesthetic Values

(***NOTE:** As per the* National Fire Plan, *national attention is mounting and focused on fire-risk reduction on National Forests. Now is a good time to invite the district or forest fire personnel to visit your site(s) and recommend ways you can create defensible space and reduce fire hazards. Be sure to include their recommendations in your VMP.*)

2. DESIRED FUTURE CONDITIONS

You will need to consult several sources as you develop your site for the future. You might want to begin by reviewing Forest Service documents, manuals and handbooks, such as *The Forest Plan Land Management Objectives*, *Built Environment Image Guide*, the district's *Facility Master Plan*, *Recreation Opportunity Spectrum* and *Visual Quality Objectives*. After that, contact the responsible line officer for her or his perspectives on how the developed should look in the future. Compile and compare your notes from the literature and the line officer before writing down the description of your future site.

2. DESIRED FUTURE CONDITIONS, cont.

The conditions you want to see on your site in the future should be specific, well described, and measurable. Consider the following as you describe your future site:

- What species mix is desired?
- Do you want early seral or late seral species?
- Do you want to feature unique species like bristlecone pine or limber pine?
- What age and size structure do you want?
- What density of trees/shrubs is desired?
- Do you want an open or closed forest canopy? Deciduous or evergreens?
- Do you want thick screening between campsites?
- What level of fire or insect risk is acceptable? ____Low risk ____Moderate risk ____ High risk
- Is defensible space an objective?
- Do you want to restrict insect and disease activity?
- Do you want large trees with full crowns?
- If yes, is work needed to maintain these conditions? ____ Yes ____ No
- What site enhancements (wider spurs, vegetation barriers, etc.) do you want?

3. COMPARE EXISTING TO DESIRED CONDITION

You're now ready to compare what you have (current conditions) with what you want (desired conditions). More than likely, they'll be different from one another. But, even if they are similar you may need to do additional work to maintain desired conditions. The key to getting what you *want* from what you *have* is to establish realistic, precise goals.

The following questions will help you compare existing conditions to desired future conditions (*Forest Service Manual: R-2 Supp. 2409.17-95-1*).

- Is the existing area similar enough to the desired future condition to defer treatment? ___Yes ___No
- If no, can the vegetation be modified to bring the condition closer to the desired future? ___Yes ___No. (Provide details.)
- What methods could be used? _____ _____

4. ALTERNATIVES

If there is a decision to proceed, prepare a list of alternative management actions/timing options you can implement to achieve your desired forest conditions. Consider alternatives that utilize existing technologies and resources that address multiple benefits. For example, thinning to create defensible space and reducing bark beetle risk may be of benefit to developed

Table 1. Alternative 1, maintain current stand

Year	Treatment Type
0	Remove high risk hazard trees.
0	Preventive spraying with Carbaryl to prevent bark beetle caused mortality. Thin adjacent areas to provide defensible space and reduce beetle pressure.
2	Preventive spraying with Carbaryl to prevent bark beetle caused mortality.
10	Monitor and conduct Hazard tree surveys.

Table 2. Alternative 2, replace the current stand

Year	Treatment Type
0	Remove trees in small groups
3	Transplant saplings/Establish shrub species
20	Remove trees in small groups
23	Transplant saplings/Establish shrub species
23	Thin saplings and ingrowth to retain full crowns.
40	Remove trees in small groups
43	Transplant saplings
43	Thin saplings and ingrowth to retain full crowns.

sites as well as areas around them.

After you have identified your alternative methods, specify actions that will carry the area through the next regeneration period. Tables 1 and 2 are examples of long-range alternative treatment plans.

5. PREFERED ALTERNATIVE AND PROPOSED ACTIONS

Your line officer should select a preferred alternative to implement.

*[**Note:** Depending on the project's scope, purpose, and needs, the preferred alternative (or proposed action) might require NEPA analysis (categorical exclusion or environmental assessment). Consult* FSH 1909.15 *to determine the level of NEPA needed to implement the proposed action.]*

The silviculturist with the area manager should provide details to implement actions after the line officer makes a selection. Details should include "how-tos" such as marking guides for field crews to complete thinning projects, a schedule of action items such as steps to be taken prior to applying pesticides, and recommendations on the type of contract to use. Included in the details should be a communication plan to keep internal and external publics informed—especially if your plan involves a popular campground. A communication plan should consider:

- Interpretation (signs, pamphlets, newspaper articles, campfire talks);
- Scoping (newspaper articles, letters);
- Coordination with other agencies, utility companies, local landowners, and/or the concessionaire;
- Prevention of future vegetation damage through education;
- How the public might help through partnerships and volunteer efforts;
- The best way to communicate with those who will be affected.

6. IMPLEMENT THE ACTIONS

Vegetation management often falls to the end of a long list of priorities, because a site manager *believes* funds and resources are unavailable. A shortfall in funding or resources can hamper—even prevent—you from implementing your Vegetation Management Plan. But there are many resources and funding sources available to help you avoid this shortfall. Here are a few to explore.

Figure 7. *Communication with the public about tree abuse and the need for vegetation management activities.*

- ***Fire/Fuels.*** If your VMP includes activities to reduce fuel and fire risk in and/or around the site, it might qualify for funds through the National Fire Plan.
- ***Timber/Silviculture.*** Depending on the value and volume of the trees, your forester might be able to utilize the National Forest Timber Management fund (NFTM) and the Salvage Sale Fund (SSSS) and use a small timber sale to remove undesirable trees.
- ***Engineering/Road Maintenance.*** Road maintenance money might be available to clear and/or prune vegetation encroaching on a road corridor.
- ***Wildlife.*** If you need trees for wildlife in the area surrounding your sites, a portion of your VMP might qualify for state and/or federal wildlife agency funds.

6. IMPLEMENT THE ACTIONS, cont

Table 3. Funding sources for vegetation treatments in administrative and developed recreations sites.

Staff	Comments
State & Private Forestry	Hazardous Fuels, Defensible Space - available if fuels are reduced.
Forest Health Management	Forest Health, Federal Lands – available if a tie to a specific disease or insect problem
Renewable Rsources	Timber Sales Management – can use funds for sales at Gate 3 and beyond
	Cooperative Work, Knutson Vandenberg (KV)
	Timber Salvage Sale (SSS), available if SSS and KV plans include work to be done.
Recreation	Recreation, Heritage, and Wilderness
	Recreation Fee Demo Program are appropriate funding sources for recreation areas.
Engineering	Trails: Capital Improvements and Maintenance
	Facilities: Capital Improvements and Maintenance are appropriate in many cases.
	Roads: Capital Improvements and Maintenance
	Roads and Trails for States also are appropriate funds for some work.

The point is to involve the right people in the process—from volunteers to specialists. The more people you involve, the more you can accomplish, and the better your plan will be.

You will find information on line items, relevant staffs, and funding sources, etc, in Table 3. Consult with your district financial assistant when considering these program areas.

Other resources to consider include:

- ***Volunteers.*** Groups and clubs are frequently looking for work projects.
- *Concessionaires and permit holders*. In some situations, the Forest Service requires them to remove designated hazard trees. Don't hesitate to ask them for help.
- ***Fire and/or trails crews.*** Get creative. For example, if crews need chainsaw certification, incorporate hazard tree removal into the training or use stand crews to cut and pile brush.
- ***District work party.*** Schedule a workday in the field for the entire unit. It's an excellent opportunity to build team spirit among employees.
- ***Plant-a-Tree.*** This is a state grant program. Check with your timber staff.
- ***Shared Resources.*** You can minimize expenses and save time if you share resources. For example, the Shoshone National Forest has a tree spade on a large Bobcat tracked vehicle. Many units on the forest use the machine.
- ***State and Private Forestry.*** There are people in the regional offices who can help you find counterparts in state government who regularly work with landowners when you need to include private land management in your management plan.
- ***Community Development and Economic Assistance Program.*** There are funds available in state and private forestry for community development that can complement vegetation management planning efforts on private land. Contact the Rural Development Coordinator in your Regional office.
- ***Service Contracts.*** These are tools you can use to help implement projects when the trees to be removed do not have commercial value.
- ***Timber Sale Contracts.*** These are tools you can use to implement projects when there is commercial value to the trees being removed.

Implementing Specific Projects

Felling and Removing Trees

The Forest Service has very specific regulations pertaining to the removal of forest products (*FSM 2400*). Hence, you should work closely with your silviculturist or forester when planning and implementing this type of project. Legal means to remove trees include:

- ***Service contract***. Used when material does not have commercial value.
- ***Timber sale contract.*** Used when material has

commercial value (*FSM 2430*). Your TMA can help you determine the value of the material and the best type of contract for your situation. (***NOTE:*** A timber sale contract must be implemented by a certified timber sale administrator.)

- ***Service contract with embedded timber sale provision.*** Used when the commercial value of the trees is less than the cost to implement the project. Your local forester can help set up the contract, but it must be implemented by a certified timber sale administrator.
- ***Administrative use.*** Used to dispose of trees, portion of trees, or other forest products by sale or without charge, ". . . as may be most advantageous to the United States…" [Administrative use authority (*FSM 2463, 36CFR223.2*)]. District Rangers are authorized to dispose of up to 40 CCF without charge (*FSH 2404.28*).
- ***Free use.*** (*FSM 2462*). Used only in unusual cases wherein management objectives cannot be met through charge permits or in accordance with specific circumstances as defined in *FSM 2462.2*. In these instances, the maximum direct sale product value cannot exceed $20.00.
- ***Personal use fuelwood permits****. The public can help remove undesirable wood products.*
- ***Timber settlement*** (see *FSM 2464*)
- ***Pile and burn or pile and chip***. Some FS and county road crews have this type of equipment.

(A complete description of contracts is included in *Appendix C*):

Applying Herbicides, Fungicides or Insecticides

At a minimum, NEPA and a public announcement, at least in the form of signage at the application site, are required when applying pesticides. Often, you will have to close the site entirely during, and for a specified period after, the operations. Whenever possible, apply pesticides during off-peak times. This will minimize both the inconvenience caused by the closure, and public exposure to pesticides.

Planting or Seeding

Remember to plan ahead. Delays are likely. Some local and native tree species might not be immediately available. With some species, germination and survival are dependent on planting being accomplished under certain conditions during specific seasons. Check the *Forest Plan* and ask your rangeland management specialist, silviculturist, or botanist to help you prepare a list of grass, forb and tree species suitable to your area.

Pruning

Pruning can help maintain safe and unobstructed roads and spurs. Plus, it helps reduce ladder fuels in and around developed sites. However, poor pruning techniques can damage trees. Depending on your skill level, before you begin a pruning operation you might wish to consult with your forest health specialist, or review the on-line publication, *How to Prune Trees*, available at http://www.na.fs.fed.us/spfo/pubs/howtos/ht_prune/htprune.pdf.

7. Monitoring the actions

Your Vegetation Management Plan is a dynamic document, so you will need to update and reevaluate it periodically. A recommended timeframe is every five to ten years depending on the condition of the trees in the area.

Keep good records. Record all changes in site conditions and all activities you undertake on your sites. Be diligent and objective. Reevaluate your plan in light of the changes that take place on your sites. Ask the question: Can the VMP still be accomplished under the new conditions? If not, how can you revise your plan to accommodate the changes?

Documenting and reporting tree failures is an important monitoring component in any hazard tree management program. Managers can use this information to gauge the status of hazard trees and failure experience. Reporting tree failures is voluntary in Region 2, and the Forest Service encourages managers and concessionaires to help out. The information will help managers monitor the status of hazard trees, and could point to larger problems within the Region. The reporting form is simple. You'll find it in Appendix D. Also, you can download it from http://www.fs.fed.us/r2/fhm/, or get it from Forest Health Management.

Chapter 2

VMP SUCCESS STORIES

Examples

To be successful, vegetation management planning has to produce results. Here are some examples.

Chapman, Chapman Group, and Elk Wallow campgrounds, White River National Forest: Beetle and mistletoe treatments

In the 1880s, fire swept through the area where these campgrounds are located. A century later, a pine beetle infestation killed many of the 80- to 120-year-old lodgepole pines that had grown up since the fire. Today, many of the remaining trees are infected with dwarf mistletoe.

In 1985, the Forest Service drafted a watershed management plan for the entire drainage. Included in that plan was a site-specific Vegetation Management Plan (VMP) and a nine- and 30-year action plan for specific vegetation treatments.

The stated need for the VMP was, ". . . to create and perpetuate a healthy, diverse forest which is visually pleasing as well as being less prone to damage by campers and/or insects and disease." The VMP called on the expertise of timber, recreation, range and wildlife specialists, and included the removal of hazard and beetle-infested trees, preventive spraying, planting, noxious weed treatment, thinning, limited overstory removal, and treatments for dwarf mistletoe.

Forest force-account crews, concessionaire personnel, students, volunteers, and local commercial timber purchasers have engaged in various projects, and funding and resources have come from a variety of sources.

Hazard tree identification and disposal is ongoing and is being accomplished by Forest Service and concessionaire personnel. Activities have included: bucking and leaving for campfires; tree sales to concessionaires for re-sale to campers; stacking in designated locations; disposal through the sale of personal-use fuelwood permits; fencing and barriers construction and use within the campgrounds and at administrative sites across the District.

Preventive spraying for bark beetles was accomplished through a commercial contract and lasted for several years until the beetle epidemic subsided. Spray trees were identified with aluminum tags and sprayed every other year on a rotating basis.

Planting was accomplished through the local elementary and high schools with student workdays. Seedling trees of several species were obtained through the Colorado State Forest Service and federally operated tree nurseries.

Thinning was accomplished through commercial sale and with force account Timber Stand Improve-

Chapman and Elk Wallow , cont.

Figure 8. Chapman campground was dense and heavily infested with dwarf mistletoe. Trees in this campground are debilitated and dying from severe dwarf mistletoe infection.

ment (TSI) crews. Overstory removal was accomplished through selective marking of beetle and mistletoe trees and a commercial timber sale contract during 1989 and 1990. The campgrounds were designated as individual sale units in a timber contract that included several stands outside the boundaries of the developed recreation sites. A clause requiring winter-only harvest in the campground units was used in the timber sale contract to reduce impacts. This clause not only reduced impacts to campers, but helped reduce soil compaction and scarification in the recreation sites. Additionally, several openings were created to promote understory forbs and grass production for small mammals in some heavily forested areas. A side benefit of commercial logging was the eventual use of some skid trails to construct a popular mile-long interpretive loop-trail.

Avalanche Creek Road Hazardous Fuel Reduction Project

The Avalanche Creek Road serves as the only motorized or mechanized route into the Avalanche Creek, Sopris Ranger District, White River National Forest, and the only access to an "end-of-the-road" developed campground and major wilderness trailhead. Beginning in the 1980s, Gambel oak and other brush began to encroach along a 2.5-mile stretch of the road. The encroachment threatened to close off the facilities at the campground and trailhead, and posed an increasing fire risk.

The Forest Service implemented a road maintenance and fire reduction program in FY 2001 with resources provided through the National Fire Initiative. Fire crews cut and chipped or stacked brush piles along the entire length of the road. District personnel burned the piles in December, 2001.

Clearing the brush has decreased the risk of wildfires caused by cigarettes tossed from vehicles, increased the corridor width to a more defensible space along the route, and has increased the sight distances and improved safety on the road.

Vallecito Campground Insects and Disease

While hosting a training session on disease and insect monitoring in June 1996, staff from the Gunnison

Figure 9. Thinning and removal of beetle infested trees and hazard trees.

Figure 10. *Aspen Middle School volunteers arrive to plant trees in the campground and along the nature trail (a, b, c).*

Interpretive signs and stops along the nature trail tell hikers and visitors about the importance of vegetation management (d). After a timber sale a fire crew works to convert a skid trail into a nature trail around the campground (e).

Vallecito Campground Insects and Disease,cont.

Service Center (Forest Health Management) discovered Armillaria and annosus root diseases, Douglas-fir dwarf mistletoe and western spruce budworm at Vallecito Campground in the Columbine Ranger District, San Juan National Forest. Two subsequent surveys proved the situation to be serious. Armillaria root disease was affecting the white fir in most of the campgrounds.

After evaluating recommendations presented during the winter by the Gunnison Service Center, the Columbine District Leadership Team decided to close the Vallecito Campground for tree removal. The decision had an immediate impact on the local scene. With 80 campsites, eight picnic sites and a heavily used trailhead into the Weminuche Wilderness Area, it is the largest and most popular campground on the District. Many local business—stores, marinas, restaurants, gas stations, boat rentals and horseback riding stables—depend on the visitors for their summer income.

Figure 11. *Vallecito Campground was closed for hazard tree removal. The sign explained the closure to the visiting public and brochures provided more detail. (Also, Figure 7).*

The Forest Service used several venues to keep the public informed about the planning process and the situation at the campground. It posted signs, distributed brochures, sent letters, and communicated regularly with local Chambers of Commerce, outfitters, residents, campground and trail users, political representatives and others. Local newspapers ran stories about the plans and progress.

Ultimately, the trees were to be felled and removed through a timber contract, which was prepared during the winter/spring of 1997. The bids were open in late June. Unfortunately, the operation was postponed because only one bid was received and it was not economically feasible.

Figure 12. *Free firewood permits were issued to the public to remove logs that were not commercially valuable.*

The delay had predictable results. With little evidence on the ground that anything was actually happening to solve the problem on this popular campground, the public became frustrated. The decision was made to mobilize force account crews to get the trees on the ground while plans were made to remove them from the site.

The removal ran into a problem rather quickly. Commercial firms had no interest in the trees (white fir). However, since it was late fall—firewood season—the Forest Service decided to issue free firewood permits to area residents. The free-firewood program, promoted through radio and newspaper ads, was a great success. Over 400 cords of wood were carted away.

Removing the slash left from the felled trees proved to be one of the most difficult tasks. Crews gathered the slash and moved it to the roadways where it was processed by a railcar-sized chipping machine leased by the Forest Service. The chips were left on the roads through the winter. In the spring, road crews collected the chips and moved them to the work center where they were given away free to the public.

Funding and support for the these projects came

in many forms:

- The Gunnison Service Center surveyed and reported on the results;
- Timber and silviculture crews surveyed, marked the campground and prepared the contract for the timber sale;
- The recreation staff was involved in all aspects including inventorying campground facilities prior to contract award, installing gates, felling, clean-up, etc;
- The trail crew donated their time and energy to cut trees and help with slash removal;
- The Contracting Office helped with the Timber Contract;
- The Public Affairs Staff assisted with the brochure development and newspaper, radio and television coverage;
- The Landscape Architect designed the sign.
- Law Enforcement helped with writing and enforcing the Closure Order;
- Forest Health Management provided suppression funds;
- The Lands Staff researched a boundary error, surveyed the campground and marked the boundaries;
- VIS Staff assisted with letters to interested parties and calls from the public.

Appendices

Legalities, management and contract guidelines, and forms.

APPENDIX A: Legal liabilities

Of primary concern to forest managers responsible for maintaining developed sites is the risk to persons and property posed by hazard trees. These are trees that are either dead or weak and are likely to fall, soon. The Forest Service is principally responsible for identifying and removing these trees from those areas where they pose unacceptable risks to persons and private property. In some instances, people who have been injured or suffered financial loss from falling trees have taken legal actions against the Forest Service. Lawsuits against the Forest Service are not to be taken lightly: Claims of up to $60,000,000 for serious injury or death are not uncommon.

Figure 13*. Total loss of a vehicle due to a root-diseased tree.*

Certainly, we cannot remove all hazard-tree risks and still maintain desirable forest conditions. However, the Forest Service is duty-bound to reduce those risks to an acceptable level. Preparing a sound Vegetation Management Plan that addresses those risks is a crucial first step toward fulfilling that duty.

Hazard tree failures in Region 2

Hazard tree failures are common:

- ***August 16, 2001***: An eight-year old boy was struck in the head and neck by an 8" aspen while sleeping in his tent with his family of five; minor injuries only.
- ***July 11, 2001:*** A 14" Engelmann spruce and 11”

subalpine fir failed in the midst of family setting up camp. Host was alerted by sound of crash and screaming children. The family had left by the time the host arrived to investigate. No injuries.

- ***Late May/early June, 2001***: A 12" aspen snapped at 8' directly into an occupied site. A pickup topper was completely crushed.
- ***Winter 2000/2001***: A 28" Engelmann spruce snapped at about 6' and completely demolished a toilet.
- ***September 22, 2000***: A 14" Engelmann spruce snapped at stump height and the top struck a 5th-wheel trailer.

The mature and/or diseased condition of stands in many of our administrative and developed sites suggests that more action is needed to protect the public and employees in these sites. There are 482 developed campgrounds in the Rocky Mountain Region with a total of 10,000 campsites. Data gathered from a sample of selected developed recreation areas in the region between 1997 and 1999 indicate an average of 1.24 hazardous trees per campsite. Cumulatively, this means there are over 12,000 trees on developed sites within the Rocky Mountain Region that pose a high hazard to visitors and property.

Liability

No sovereign immunity; employee liability.

The Federal Tort Claims Act (28 U.S.C. 1346(b), 2671 et seq.) waives sovereign immunity. It provides that the United States shall be liable for money damages for property damage or personal injury or death caused by negligent or wrongful act or omission of Federal employees acting within the scope of their employment, in the same manner and to the same extent as a private individual would be liable under like circumstances under the law of the State in which the accident occurs.

Federal employees are not individually liable except when acting outside the scope of their employment. The Federal Employees Liability Reform and Tort Compensation Act of 1988 (the Westfall Act) provides:

"Upon certification by the Attorney General that the defendant employee was acting within the scope of his office or employment at the time of the incident out of which the claim arose, any civil action or proceeding commenced upon such claim in a United States district court shall be deemed an action against the United States under the provisions of this title . . . and the United States shall be substituted as the party defendant."

Agency negligence

The Forest Service Manual (FSM) outlines objectives, policies, and responsibilities for the wide array of jobs the Forest Service does. The FSM does not always specify how an objective, policy, or responsibility is to be achieved; therefore line officers have some flexibility in their duties of managing the National Forest. However, failure to make a reasonable attempt to successfully accomplish FSM direction may constitute a degree of agency negligence.

Some examples of FSM direction that pertain to hazard tree management are:

- ***6703.3***: The Forest Service shall provide safe and healthful facilities for visitors.
- ***2303.5***: Ensure high-quality experiences through location, design, and maintenance of facilities that afford a reasonably safe and healthful recreation experience.
- ***2330.2.2***: To develop and manage sites consistent with the available natural resources to provide a safe, healthful, aesthetic, non-urban atmosphere.
- ***2330.3.6*** Establish priorities for the development and management of sites in the following order:

  a. Ensure public health and safety…

The agency may be held negligent and liable if a claimant can prove that:

1. The agency had a legal duty to the claimant; and
2. The agency breached its duty; and
3. The agency's breach was the legal cause of the claimant's injury or property damage.

If we are negligent in attempting to carry out our duties we may be liable for resulting damages. Lawsuits up to $60-million for serious injury or death are not uncommon.

Discretionary function exception

The discretionary function exception (DFE) arises from the Federal Tort Claims Act and in limited cases may protect the agency from liability. In order for the DFE to protect the agency, the court must first make a determination that the act, or failure to act, which allegedly caused an injury was a matter of choice by the authorized officer. If a federal statute,

regulation or policy removes the authorized officer's discretion and requires a certain course of action, the DFE does not apply. If, however, the course of conduct was discretionary, the court then moves to a second determination whereby it decides whether the discretion exercised was based on considerations of public policy. In other words, if a manager conducts a hazard tree inventory and schedules activities to eliminate the hazard in a responsible manner, liability is reduced.

APPENDIX B: Forest Health Management

FUNDING

Funding is available through Forest Health Management on an annual basis for insect and disease pre-suppression surveys and pest suppression projects. For projects involving hazard tree inspection and treatment, the hazard condition should be tied to the specific disease or insect pests causing the hazard. Project proposals may span several years, however funding is awarded on an annual basis.

Forest Health Management issues a call for pest management project proposals each year through the Forest Supervisor's offices. A brief proposal describing the project must be prepared and submitted with the funding request. A funding request form (FS-3400-2 Forest Pest Management Project Proposal – see http://fsweb.wo.fs.fed.us/) must be submitted with the project proposal. You may also contact your Forest Health Management service center for information regarding this funding procedure. Contacts are:

- Region 2 Forest Health Management website: http://www.fs.fed.us/r2/fhm/
- Gunnison Service Center: Southern Colorado (White River NF, except Dillon RD; GMUG NF; San Isabel NF; San Juan NF; Rio Grande NF) (970) 641-0471.
- Lakewood Service Center: Northern Colorado, southern Wyoming, Kansas (Medicine Bow-Routt NF; Arapahoe-Roosevelt NF; Pike NF; Dillon RD, White River NF) (303) 236-9541.
- Rapid City Service Center: Central Wyoming, South Dakota, Nebraska (Shoshone NF; Black Hills NF; Nebraska NF) (605) 394-1960.

HAZARD TREE INSPECTIONS

Hazard tree inspection is a highly specialized activity. Inspectors must be trained and qualified to identify tree species and evaluate defects. Hence, depending on your personal qualifications and levels of expertise in this area, you might consider utilizing qualified crews to perform your inspections, especially if the inspections are to be done over wide geographic or multi-Forest areas.

Forest Health Management (FHM) offers formal tree-inspection training classes each year, and can provide individualized training, on-the-ground assistance to inspection crews, help getting started, and guidance in evaluating defects found at particular sites. For details, contact Forest Health Management, or visit the FHM Website, http://www.fs.fed.us/r2/fhm/. Details and resources can be found in several publications.

***Figure 14**. Hazard tree removal due to root disease.*

Frequency and intensity of inspection

Some level of annual inspection is needed for all developed sites: the actual frequency and intensity of inspections should be based on tree-failure history, stand conditions, site usage/occupancy, and the timing and intensity of winds. In most cases, a full tree-by-

Hazard Tree Inspections, cont.

tree inspection and rating can be conducted at multi-year intervals, providing broader inspections are performed annually to detect damage and hazards (partially uprooted trees, broken tops hung in the crown, etc.) that might have resulted from isolated events, such as storms. During broader inspections, you should pay particular attention to trees that previously had been given marginal hazard ratings.

Documentation

It is very important that you document your inspections and resultant activities, and keep your records up to date. Accurate records will help managers track your VMP progress and, in the event of an accident, will establish the efforts that have been made to reduce risks. *If you do an inspection, but have no record of it, the law says it was not done.*

Procedures

Inspectors will need certain basic tools, including diameter tape, Pulaski for examining roots, increment borer and/or cordless drill to investigate internal decay, binoculars, hatchet, etc. Paper forms or a data recorder with appropriate data dictionary are needed. A means of mapping and identifying trees should be considered (distance/azimuth from reference points, sketch mapping, GPS, tagging, etc).

The Region has developed a database application in Microsoft Access™ to handle hazard tree data. Data can be entered manually from paper forms or downloaded from a data recorder and imported into the database. The database provides formatted reports of all trees or trees selected by various criteria as well as summaries to aid interpretation of hazard tree severity for a site, principal defects, and tree species and dbh of trees in various hazard rating categories. Consult a forest health specialist for further details and advice on all aspects of hazard tree inspection.

APPENDIX C: Contracting Guidelines

TIMBER SALE CONTRACT

Traditional Commercial Timber Sale Contract

Follow standard sale procedures in FSM 2400 and FSH 2409.15 and 2409.18.

Prepare contract to require work needed to remove included timber while protecting resources and providing for reforestation needs.

Any other resource enhancements, silvicultural treatments, and restoration work is beyond current timber sale contract authorities and cannot be included as a requirement of the timber sale contract. This type of work can be accomplished through a service contract or force account if a K-V Plan has been approved and sufficient revenue has been deposited to cover its cost. Otherwise, appropriated funds will be needed to conduct the work. Also see Item II. C. Service Contract Concurrent with Timber Sale.

Selling Products Decked under a Service Contract

Once the service contract is completed, a timber sale contract can be advertised and awarded to remove the product.

Follow standard appraisal procedures to determine product value. Rates for the decked material need to recognize the timber property value (FSM 2469.03).

Deposit the value of the stumpage into NFF, K-V, or SSF. Deposit timber property value resulting from the falling, yarding, and/or decking into the miscellaneous receipts account.

SERVICE CONTRACT

Traditional Service Contract

Follow standard processes and procedures under the Federal Acquisition Regulations (FAR). Program managers should contact the acquisition-contracting officer during project planning stage.

Service Contract to Deck Products for Later Sale

Determine the existence of funds to pay for logging under the service contract. Under current authorities, the product value cannot be used to pay for the service contract.

Conduct a market analysis to determine:

- Market timing when the highest demand for the product occurs.
- Product specifications, especially log length requirements of prospective buyers because some products (house logs, poles, dimensional lumber) have specific length specifications.
- Market availability or need to create market.

Other factors:

- Deterioration (logs left in decks deteriorate and lose value quickly), need for watering.
- Security of logs from theft and woodcutters. Amount of product sorting needed.

NOTICE

The Forest Service has an interest and need to accomplish work on the Project Area beyond the requirements of the ____Timber Sale Contract, # at this time. The work consists of: ___

The Forest Service plans to acquire this additional work under a service contract pursuant to the Federal Acquisition Regulations. If the purchaser is interested in competing for the service contract, contact _____ for additional information. The purchaser's participation in the service acquisition process is entirely voluntary.

Figure 15. Notice to include in timber sale prospectus if concurrent service contract is envisioned.

Service Contract Concurrent with Timber Sale

To have the benefit of a single treatment entry, a separate service contract can be pursued to be completed concurrent with or immediately following the timber sale contract.

When advertising the commercial timber sale, include a notice (*Fig. 15*) in the timber sale prospectus that the purchaser may be contacted to submit a competitive proposal for a subsequent service contract to be procured at a later date in the sale area.

Determine that funds are available to pay for the service work.

When it is likely that the timber sale and service contract will operate simultaneously, the contracting officers should coordinate closely to mitigate potential operational conflicts. Coordination should begin in the planning stages.

*(**NOTE:** having a service contract concurrent with a timber sale may not be a viable option. Check with a contracting specialist for the latest information.)*

Service Contract with Embedded Timber Sale

The Forest Service historically has used several individual contracts to accomplish numerous activities. For example, a contract is awarded for merchantable tree removal, another contract is awarded for site preparation, a third contract is awarded for road closures, a fourth contract is awarded for tree planting, and a fifth contract is awarded for pre-commercial thinning. The service contract with an embedded timber sale combines these operations into one contract to take advantage of the efficiencies of having one larger operation meet multiple objectives without numerous entries occurring over a protracted period of time.

RIGHTS OF REMOVAL EXAMPLE

The contractor may elect to remove at no charge material on the site, designated to be treated in accordance with this contract. Material so removed must be marked, identified or designated in the contract. Transportation of this material must be in conformance with applicable State and Federal laws, regulations, and policies. The Government makes no guarantee of the quality or quantity of material that may be removed. Such material is estimated to be of insignificant quantity and to have no apparent commercial value.

Should the contractor elect to remove any of the designated material, the following shall apply:

The Forest Service will issue to the contractor, or designated representative, serially numbered Product Removal Permit Books for use only on this contract. The Contractor shall return Product Removal Permit Books, used or unused, the issuing Forest Service office in accordance with instructions contained on the cover of each book.

All permits shall be completed and attached to each load by an individual, other than the truck driver, named by the purchaser in writing, in accordance with the instructions on the inside cover of the product removal permit book. The product removal permit shall be attached prior to removal from the immediate vicinity where loading is done. The permit shall remain attached until the load is decked at the delivery point.

The contractor shall comply with all commercial road use regulations applicable to roads used in hauling of removable material under the contract. A copy of the Commercial Road Use Regulations may be obtained from _____, and copies are available for review at _____.

The contractor shall provide to the contracting officer identification of the driver and vehicle used in hauling the removable material.

This contract is subject to the Forest Resources Conservation and Shortage Relief Act of 1990 (16 USC 620, *et seq.*). Except for species determined to be surplus, unprocessed logs originating from federal lands west of the 100th meridian, shall not be exported from the United States nor used in direct or indirect substitution for unprocessed logs exported from private lands by the Contractor (Purchaser) or any person as defined in the act. Prior to delivering such unprocessed federal logs to another party, the Contractor (Purchaser) shall require each buyer, exchangee, or recipient to execute an acceptable agreement, that shall: (a) identify the federal origin of the logs, (b) specify domestic processing for the logs involved, (c) require the execution of such agreements between the parties to any subsequent transactions involving said logs, (d) require that all hammer brands and/or yellow paint must remain on logs until they are either legally exported or domestically processed, whichever is applicable, and (e) otherwise comply with the requirements of the act.

Figure 16. Sample clause for use when removal rights are included in service contract

Service Contract with Embedded Timber Sale, cont.

To embed a timber sale into a service contract, the following requirements must be met:

- The timber has a negative appraised value, or
- A timber sale offering received no bids, the sale was reviewed for unnecessary costs and appraisal estimating errors, and reasonable efforts were made to assure the market was adequately tested.

The service contract is the contract instrument being advertised and the timber sale is a requirement of the service contract. A potential contractor would bid on procurement activities included in the service contract solicitation. The value of the timber is fixed and not a biddable item. The timber or forest products will be offered as pre-measurement sale. The two methods available for payment are: Payment Unit Sales and Lump Sum Sales. The FS-2400-3T (8/99) contract for pre-measured sales will be used in the service contract.

Determine product value using national minimum rates (FSM 2431.31b draft) unless regional minimum standards have been established (FSM 2431.04; in which case, use the regional rates.

Advertisement of the service contract is required; therefore, embedding a timber sale in a service contract is not considered a direct sale. When the appraised value of the timber to be included in a service contract exceeds $10,000, the advertisement period will be 30 days. The policy to limit direct sales to no more than $10,000/fiscal year to any one individual (FSM 2432.47b draft) is not applicable because advertisement of the service contract will always occur.

The Federal Acquisition Regulations require numerous certifications from the offerors (quoters) before award of a service contract. These include certification of business size, taxpayer identification, and information on the type of business among other things. Many of these certifications are the same as the certifications required when using a timber sale contract (as found in the timber sale bid from).

Service Contract with Rights for Removal

When there is NO commercial market for and the volume of the product removal is insignificant to the services being performed, removal rights may be included in the service contract. There will be no charge to the purchaser for this material, and no credit to the forest toward timber sale accomplishment for this material. Figure 14 is a sample clause to use in the service contract when removal rights are included.

ADMINISTRATIVE USE

Administrative use authority (36 CFR 223.2) can be used to dispose of trees, portion of trees, or other forest products by sale or without charge as may be most advantageous to the United States.

Such administrative use shall be limited to the following conditions and purposes:

1. For construction, maintenance, or repair of roads, bridges, trails, telephone lines, fences, recreation areas, or other improvements of value for the protection or the administration of Federal Lands.
2. For fuel in Federal camps, buildings, and recreation areas.
3. For research and demonstration projects.
4. For use in disaster relief work conducted by public agencies.
5. For disposal when removal is desirable to protect or enhance multiple use values in a particular area.

Disposal of products under this authority can be accomplished using contract instruments listed herein.

Grants and Agreements

Because of the unique requirements, authorities, and procedures, there may be limited use of this instrument. When this instrument is considered, review possible governing grants and agreements projects with your Grants and Agreement Coordinator.

Special Use Permits

Because of the unique requirements, authorities, and procedures, there may be limited use of this instrument. When this instrument is considered, review possible governing special use permits projects with your Special Use Coordinator.

Timber Sale with Embedded Service Contract

The following laws and regulations currently prohibit embedding a service contract in a timber sale:

1. Requiring work in a timber sale contract that is outside the scope of harvesting and reforestation constitutes an exchange of goods for services, which is prohibited. Activities not directly related to the harvest

and reforestation are to be funded separately. Reference the Money and Finance Act of Sept. 13, 1982 (P.L. 94-258, 96 Stat. 1004), the Federal Property and Administrative Services Act of 1949 (41 USC 254c), which require use of a procurement instrument when acquiring services by contract, Principles of Appropriations Law, Volume II, second edition, chapter 6E - Augmentation of Appropriations, 6-103, in accordance with 31 U.S.C., 3302(b) of the miscellaneous receipts statute, and 31 U.S.C. and 1301(a), restriction of use of appropriated funds to their intended purposes.

2. Competition must be obtained for all service contracts in excess of $2500. See Competition in Contracting Act (CICA) (P.L. 98-369), competition requirements as stipulated in 48 CFR 406.302, and the Federal Acquisition Regulations, Part 6.303, for authorized exceptions to the competition requirement.
3. It is the policy of the Government to provide maximum practicable opportunities in its acquisitions to small business, HUBZone business, small disadvantaged business and women-owned business concerns. All procurements must be set-aside for small businesses unless there is not a reasonable expectation that we will receive offers from at least two small businesses and that award will be made a fair price (48 CFR 419.201) (See FAR Part 19 for details); whereas, with timber sale contracts, only an established share of sales, by market area, is required to be set aside for small business (Small Business Act, USC 631, FSM 2436).
4. The Department of Labor requires that all service contracts in excess of $2500 be subject to the Service Contract Act of 1965 (48 CFR 422.70 and FAR Part 22). The Service Contract Act requires service contract wage determinations be incorporated in every service contract in excess of $2500. Construction contracts in excess of $2000 are subject to the Davis-Bacon Act (40 USC 276a-276a-7) which requires that prevailing wage rates as determined by the Secretary of Labor be paid. These wage determinations must also be included in acquisition solicitations and contracts as applicable.
5. Export Controls -

(Also: See Table 5, page 28,)

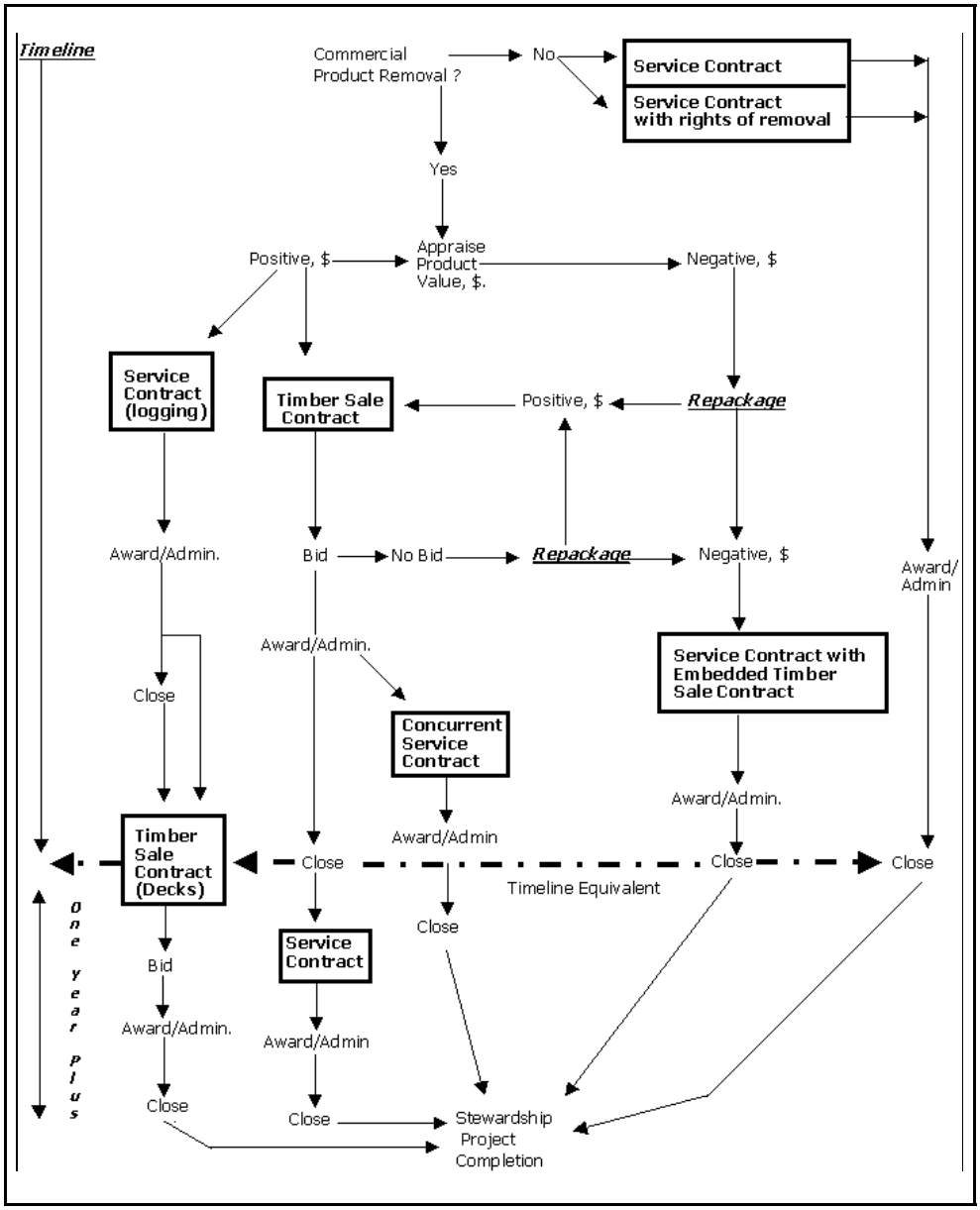

Figure 17. Decision-making flowchart for contracting.

Timber Sale with Embedded Service Contract, cont.

Table 4. Guide for determining the appropriate contracting instrument

Criteria/ Reference	Timber Sale Contract	Service Contract	Service Contract with Embedded Timber Sale	Service Contract with Rights for Removal	Administrative Use	Grants/ Agreements	Special Use Permits	Timber Sale with Embedded Service Contract [1]
Authority	16 U.S.C. 472a (NFMA) 36 CFR 223	41 U.S.C. 254c Fed. Property Admin Service Act	See both Timber Sale and Service Contract Authority	Same as Service Contract	36 CFR 223.2 [2]	FSM 1581 [3]	FSM 2710 and FSH 2709.11 [4]	
Purpose	Sale and Removal of Timber with commercial value	Procure Services	To procure service for vegetation management with negative appraised value and receive minimum rates	Procure services with insignificant product removal - NO payment for product.				
When to Use	Anytime you have positive appraised value and/ or competitive market	To procure services anytime with appropriated or trust funds	Only when there is NEGATIVE appraised value or No Bid with adequate market survey and project review that follows the No Bid	When there is absolutely NO commercial market as periodically tested				
	Timber Sale value subject to Bid	Services subject to bid- NO Timber Value	Service Contract work items are subject to Bid. Timber value is fixed and DO NOT bid	Services subject to bid- NO Timber Value				
Funding	NFTM/SSF to pay for preparation and admin. Receive payment from purchaser for products.	Must have funds available to prepare a solicitation and to pay the contractor.	Must have funds available to prepare a solicitation and to pay the contractor & admin contract. Receive payment from contractor for products.	Same as Service Contract				
Reporting/ Accounting	TSA, STARS, MAR	279, 281, MAR, SRS	All as shown in Timber Sale and Service Contract Columns	Same as Service Contract. No Timber sales target				

[1] Currently timber sale contract requirements must be directly related to harvesting included timber. Including other service requirements (eg. appraised cost allowances) violates the Augmentation Theory of Appropriations and Federal Acquisition Regulations.

[2] Administrative Use Authority (36-CFR-223.2) can be used to dispose of trees, portions of trees, or other forest products, by sale or without charge, as may be most advantageous to the United States. Use infrequently.

[3] To meet research objective or mutually beneficial outcome when specific Grants/Agreements authority applies. See G/A coordinator.

[4] To meet objectives defined by special use permit authority. See special use coordinator.

United States Department of Agriculture | Forest Service | San Juan – Rio Grande Forests | Columbine Ranger District
Durango Office, 110 W. 11th St., Durango, Colorado 81301, (303) 385-1283
Bayfield Office, P.O. Box 439, Bayfield, Colorado 81122, (303) 884-2512

Reply to: 1900-NEPA **Date:** March 7, 1997

Subject: Vallecito campground-Categorical Exclusion

This letter serves as documentation to the project file that the hazard tree removal project at Vallecito Campground, T.37N., R.6W., Sec. 16, on the Columbine Ranger District of the San Juan/Rio-Grande National Forest falls within FSH 1909.15, NEPA procedures handbook, category 31.1. This category states what types of projects constitute an action that may be excluded from documentation in a case file and a decision memo. Category 31.1b-5-"Repair and maintenance of recreation sites and facilities", permits the responsible official to make the decision that the removal of trees infected and susceptible to Armillaria and Annosus root diseases within the campground falls within the category of actions excluded from documentation. This disease presents a public safety and health hazard.

Forest Service plant pathologists discovered root diseases (Armillaria and Annosus) along with Douglas-fir dwarf mistletoe and western spruce budworm infestations to exist throughout Vallecito campground. (Attached to this letter is their report and recommendations for treatment of the campground.) The Columbine Ranger District leadership team made the decision to implement the treatment recommendations of the pathologists for the Annosus and Armillaria root diseases within the 30 acre Vallecito campground. It was felt that the hazardous situation did not allow any room for risks to be taken and that the plan of action would be to proceed with inventory, treatment, and a vegetative management/landscape plan for guidance to re-plant the campground with disease tolerant tree and shrub species. It was determined that it would not be a safe situation to perform work in one loop of the campground while leaving other loops open for camping. The plan of action and time frames indicate that the project will take the entire 1997 field season to complete and the campground will be open for business in 1998. The trailhead for Vallecito trail, leading into the Weminuche wilderness, will remain open.

Vallecito chamber of commerce was notified of the situation on Feb. 20th, a public notice was sent to the Durango Herald on March 4, 1997 and an article was published in the Durango Herald on March 6, 1997. An open house will be held on May 15, 1997 at the Vallecito Chamber of Commerce to inform the public and answer questions. A brochure will be developed to distribute to the public explaining the situation along with interpretive signs to be placed at the campground.

A Biological Evaluation/Assessment was prepared by the Wildlife Biologist and it was determined that the removal of the infected and susceptible trees will have no affect on any federally listed or proposed species.

Mitigation measures to ensure against degradation to the resources (water, existing facilities, campground roads, remaining vegetation) will be addressed in the service contract to be done for the tree removal. Through the utilization of a service contract for the removal of the trees, better protection of the resources and existing infrastructure will occur. We anticipate the removal of few trees near Vallecito creek and plan not to skid within 100 feet of the creek. Special attention will be taken to yard logs with cables when removing trees anywhere near Vallecito creek. The vegetative management/landscape plan to be done for Vallecito campground will include measures to be taken to rehabilitate areas of the campground that are heavily impacted from years of repeated camping use in addition to a plan of action for re-planting with resistant species of vegetation.

Michael G. Johnson
District Ranger

Caring for the Land and Serving People

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Figure 18. *Example of a categorical exclusion. This one was used for the Vallecito Campground hazard tree removal project.*

APPENDIX D: Forms; hazard trees and tree failures

Following are two forms used in hazard tree management. Original, up-to-date versions of the forms can be downloaded from the Region 2 Forest Health Management web site (http://www.fs.fed.us/r2/fhm). They can also be obtained during trainings or directly from Forest Health Management.

USDA Forest Service — REPORT OF TREE FAILURE — Rocky Mountain Region

Name of site: _____ Report by: _____

Date: _____ Agency and unit: _____

A) Tree and Stand

Tree species _____

Approx. dbh _____

Forest type _____

Elevation _____

Stand age class _____ Overmature
_____ Mature
_____ Young-growth
_____ All-age

B) Class of mechanical failure

_____ Upper bole (top half)
_____ Lower bole
_____ Butt (lower 6 feet)
_____ Limb
_____ Soil (roots pull out of soil)
_____ Root failure (major roots fail)

C) Defect or fault leading to failure

____ Rot (trunk, limb or root)
____ Sweep
____ Tree dead - snag
____ Fire wound
____ Lightning wound
____ Mechanical wound
____ Leaning
____ Cracks or splits
____ Fork or multiple top
____ Twin bole or basal fork
____ Dead top or branch
____ Widow-maker or hang-up
____ Canker, rust
____ Canker, mistletoe
____ Other _____
____ Unknown or none

D) Contributing factors

____ Wind ____ Stream bank erosion
____ Snow ____ Shallow rooting
____ Erosion ____ Tree striking tree
___ Soil saturation ____ Other: _____
____ Unknown or none

E) Time and place of incident

Approx. hour _____

Date or month, year _____

Forest/district _____

County, State _____

During season of public use: ___ Yes __ No

F) Land ownership

____ Federal
____ State
____ Other public _____
____ Private
____ Public utility

G) Site category

____ Developed campground
____ Developed picnic ground
____ Other developed public-use site
____ Marked trail
____ Roadside
____ Residence
____ Other _____

H) Property or person affected

____ Agency ____ Contractor
____ Recreationist ____ Public utility
____ Forest industry
____ Permittee/Concessionaire
____ Other _____

G) Consequences

____ Clean-up work required
____ Damaged property: _____
Loss estimate: $ _____
____ Injury
____ Medical attention required
____ Fatality

Comments: _____

_____

_____

_____

Figure 19. *Tree failure reporting form*

Tree failure reporting form

Documentation and reporting of tree failures is an important monitoring component of an overall hazard tree management program. It provides information for managers to gauge the status of hazard trees and failure experience. Analysis of tree failure data at a larger scale helps to improve criteria for detecting hazard trees and also provides an indication of particular problems in the Region that need to be addressed.

Tree failure reporting in Region 2 is voluntary. The simple form (left) should be completed when any tree failure is discovered in a developed site.. See p. XX and the back of the form for further details.

Reporting tree failures

Accurate and complete reporting of tree failures will contribute to improved criteria for detection of hazard trees. The data will also be used to determine where and in what species particular problems occur that need to be addressed. Ultimately, reporting will contribute to improved safety of our recreation areas.

During spring cleanup, after storms, and after any incident of tree failure, please complete a form for each tree that has failed. In some cases, dates and particular circumstances of failure may not be known; these tiems can be left blank in such cases.

If you have questions about items in the form or hazard trees in general, please contact the Forest Health Management office in your area:

- Gunnison Service Center: (970) 641-0471
- Lakewood Service Center: (303) 236-9541
- Rapid City Service Center: (605) 343-1567

Please send completed forms to:

USDA Forest Service
Forest Health Management
Gunnison Service Center
216 N. Colorado St.
Gunnison, CO 81230

Hazard Tree Inspection form

A full hazard tree inspection may be recorded in the field with a datalogger or on a paper form. The form currently recommended for use in Region 2 (***Figure 20***, page 32) is compact and easy to use. However, training is required to properly conduct an inspection and to recognize and categorize symptoms, diseases and defects that contribute to tree failure.

Use of HAZARD TREE EVALUATION Form

Defective trees are potential hazards to people and property in recreation areas. Indicators of defects are used to identify trees that may fail. Systematic, annual, documented inspections of trees in recreation sites and corrective action are recommended to reduce hazards to the public. (D.W Johnson. 1981. Tree hazards, recognition and reduction in recreation sites. Technical Report R2-1. USDA Forest Service, Forest Pest Management Denver, CO.)

The HAZARD TREE EVALUATION form is more than a hazard rating record. It is a record of the overall structural condition of a tree hat can be sued to determine progression of defects over time and to document the frequency of certain defects. All defects observed should be checked even though only the highest values are used in the hazard rating.

Forms cannot take all situations into account. Trained and experienced evaluation crews may need to exercise judgment in some cases. However, if you need to regularly override the form, need training, or have any questions about the process or tree hazard, please contact Forest Health management staff:

Gunnison Service Center: (970) 641-0471 **Lakewood Service Center:** (303) 236-9541
Rapid City Service Center: (605) 343-1567

1. Maps of the campgrounds are helpful in planning and performing hazard tree surveys. All recreation structures should be drawn on the maps. These maps used/created during the survey should be included with the HAZARD TREE EVALUATINO forms to indicate which specific recreation sites were surveyed.

2. Trees are easily and accurately mapped on the HAZARD TREE EVALUATION form by selecting reference points, then recording azimuths and distances to all defective trees on the form. Choose reference points that are permanent structures and unlikely to be moved. For large structures, use a more specific reference point such as the most northern/northwestern edge of the structure. **Good reference points to use are**: permanent picnic tables (codes as "T"), fire pits or grills ("F"), campsite number sign ("#"), latrines ("L"), signs ("S"), benches ("B"), water(("W"), and garbage containers ("G").

	Definition	Values
Target	Target rating is a combination of the likelihood that a potential target will be hit (assuming the tree fails) and the value of the target.	Potential targets are assigned values of 1 or 2
Defect	A defect rating is an estimation of the likelihood that a tree will fail based on available indicators	Defects are assigned values of 0 to 3

3. Potential hazard of a tree is determined by Target and Defect:
4. More than one type of potential target or defect may be identified and checked for any tree.

5. Calculate hazard rating by multiplying target value plus the value of the worst defect.

Possible Hazard Ratings: Target x Worst Defect = Hazard Rating

6 = Highest, 4, 3, 2, 1, and 0 = lowest

Figure 20. Hazard tree evaluation form instructions.

Usda Forest Service **HAZARD TREE EVALUATION** Rocky Mountain Region

Location_____ Page: _____ of _____

Date: _____ Inspected by:_____

(Each column represents one tree)

Campsite unit or other recreation structures																
Tree number																
Tree species																
DBH																
Tree Mapping (if used): tree azimuth (degrees)																
Tree distance (feet), & refer. Point (codes on back)																
	2	**P**eople, **P**ermanent **S**tructures, **V**ehicles														
	1	Major **T**rails and **R**oads														
		Wounds/cankers > 50% of circumference														
		Unnatural lean														
		Root disease														
	3	Exposed roots with decay, > 50% of roots														
		Fruiting of decay fungus or punk knots														
		Sound shell < 33% radius														
		Dead tree, **T**op/**B**ranch > 9"? in diameter														
		Wounds/cankers 33-50% of circum.														
		Exposed roots with decay, < 50% of roots														
		Cavities in branch, bole, base														
	2	Codominant stems with included bark														
		Deat Top/Branch, 6 - 9 in diameter														
		Sound shell 33-60% radius														
		Wounds/cankers 10-33% of circum.														
		Lightning scar, cmall crack														
		Large broom, dead top/branch 3-6? Diam.														
	1	Codominant stems with no included bark														
		Exposed or severed roots, no decay														
		Natural lean														
	0	No visible defect; minor wounds, pitch/flux														
		Drilling (if done) - inches of sound wood														
		Hazard Rating (Target x Worst Defect)														
Notes:																

Figure 21*. Hazard tree evaluation form.*