California Forest Stewardship Program

FORESTLAND STEWARD

WORKING TOGETHER FOR HEALTHY FORESTS FALL 1999

What is a healthy watershed?

Ask a dozen people this seeminglystraightforward question and you'll get a dozen different answers plus more than a few puzzled looks. Even experts in the field struggle to come up with a meaningful way to answer this fundamental question.

At the same time, most people have an intuitive understanding of watersheds and the issues surrounding them. They want clean water to drink, an ecosystem that supports fish and other wildlife, and healthy forests.

What is a watershed?

For the sake of discussion, we need to agree on a meaning. A very simplistic one is the basic definition: a watershed is a geographical area (some think of it as a basin or bowl) that is drained by a distinct river or stream and separated by ridgetop boundaries.

But there's more to it than the simple definition implies. When speaking of watersheds, some people are talking primarily about the water component, while others mean the basin–everything within the area including the soil, vegetation, air, land and water–even the people and cities. Talk to a scientist and you'll hear about a biophysical area, often seen through the eyes of a particular discipline–hydrology, geology, biology, etc. A big city dweller may have a vastly different perspective from someone who lives on forestland.

Seeking healthy watersheds.

In addition, there can be watersheds within watersheds; it's all a matter of scale. You can talk about a watershed for a small creek (where the watershed might be tens or hundreds of acres), or for a large river (where the watershed is thousands of acres). For

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Watersheds

Watershed health

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example, the Rattlesnake Creek watershed is different from the Ten Mile Creek watershed, but they are both in the South Fork of the Eel River watershed.

What are the functions?

Perhaps we should ask the question differently: How does a watershed function–either in its healthy condition or when impaired?

Most people would agree that a healthy watershed performs a number of "jobs" that keep the ecosystem in balance: it captures, stores, and releases water; cycles nutrients; filters sediment and pollutants; and supports the many living organisms dependent on the ecosystem.

These functions are dependent on a few basic factors. Climate and physical features of the land (topography, shape, slope, aspect) determine how water moves through the system. Soil is a vital, practically non-renewable resource that contains the minerals and organic material necessary for vegetation. The soil in an area often determines which plants can grow there.

Plants, in turn, play a major role in watershed health. They protect the soil surface from erosion in a number of ways. Roots help bind the soil, tree canopies provide shade and reduce the force of rain and wind, and leaf litter protects the soil surface, filtering and slowing runoff. Plants recycle nutrients from the soil through their roots. In addition, plants provide the habitat and food that support wildlife of all types.

When any of the watershed functions are disrupted, it can have far-reaching effects throughout the ecosystem.

Where do people fit in?

Any discussion of watershed health is incomplete without the human component. Human needs define many of the activities that go on in our watersheds. Socioeconomic concerns (e.g., land use, management techniques) must be included in any realistic watershed equation.

The goal of watershed management is to protect or restore soil and vegetation so they can function to maintain the productivity of the land and its other resources. Development and resource utilization must be achieved in ways that protect the integrity of the watershed.

A watershed approach

Planning at a watershed level is a relatively new approach. It becomes complicated because most watersheds involve multiple ownerships–often a mixture of private and public entities–

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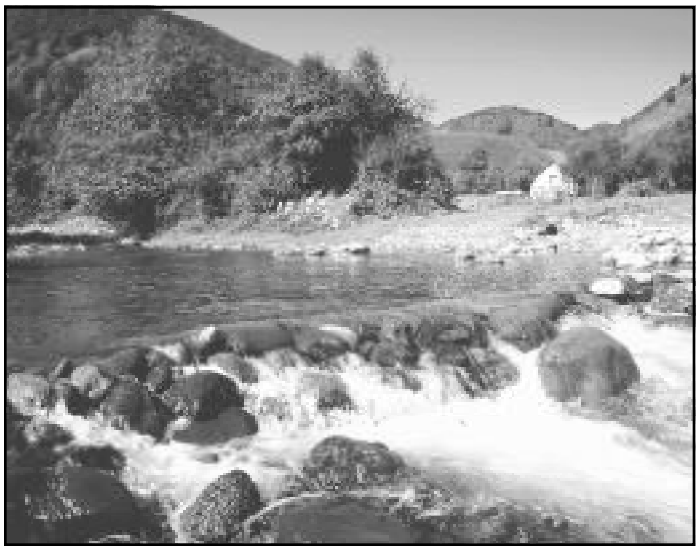

Most people will agree that a healthy watershed is an important goal to strive for.

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each with its own values and goals.

However, those living in a particular watershed are connected to one another in a special kind of community where the actions of each can affect the quality of life for the others. Each member of a watershed community has a stake in maintaining its health–for clean water, aesthetics, natural resources, and other amenities. For these reasons, the local watershed is a logical level for decision-making and problem-solving.

Solutions

What can you do to protect or restore your watershed? The first step is education. There are ways to minimize erosion, make waterways more "fish-friendly," improve forest health, and decrease the risk of catastrophic wildfire. Knowing about watershed functions and good management techniques are vital to understanding how to maintain the health of these systems.

What does the future look like?

Most people will agree that a healthy watershed is an important goal to strive for. To this end, people throughout California are joining together in CRMPs or watershed groups. These may center around a single issue–diminishing fish populations, fuel hazard, water quality–or encompass multiple concerns. Despite a variety of goals, individuals are learning to work together, prioritize needs, and find funding to accomplish on-the-ground projects to improve watershed health.

There are a number of organizations and agencies eager to assist these volunteer efforts. Start with the Forest Stewardship Helpline at 1-800-738-TREE or your local RCD office. The Forest Stewardship Website at ***http://ceres.ca.gov/foreststeward*** has lots of watershed information and links to other resources.

How healthy is your stream?

A thorough stream assessment takes training, but you can identify potential problems yourself simply by using your eyes and a little basic knowledge.

Water Color. Color is one indicator of stream health. Clear water is often found during low flows while muddy waters occur during high flows and when upstream activities send sediment downstream. Tea-colored water can come from the brown tannin of decaying leaves. A colored sheen may indicate an oil spill.

Algae. Algae thrive on nutrients from commercial fertilizers, leaf waste, and manure. Light or dark green algae scattered in spots indicates a healthy stream. Matted or hairy algae mean poor stream quality. Brown algae point to sediment deposits. An algae bloom can indicate excess nutrients or pollution.

Foam. Froth on a stream can be natural or human-caused. Natural foam has an earthy or fishy smell. Soap or detergent foam will often have a perfume smell.

Riffles. Riffles occur when water runs over rocky or rough streambeds. A mix of riffles and quiet pools provides good fish habitat.

Streambed sediment. Sediment has a negative effect on salmon spawning, hiding cover, and insect abundance. Sediment can also fill pools or reduce water depth, leading to warmer water.

Streambank erosion. Bare spots on streambanks should be noted. Wooded streambanks seldom erode, even in high floods. Significant bank erosion along a stretch of stream may indicate problems.

Fish shelter. Submerged logs and dead trees (large woody debris) provide good fish habitat and stream structure.

Stream shade. Trees overhanging the stream help keep the water cool and can provide good fish habitat.

Stream temperature. Warm water threatens salmon, trout, and steelhead. Check with your local RCD or UC Extension office to find out about water temperature in your area.

Workshop: What is a Healthy Watershed?

Date: January 13 & 14, 2000
Place: Chico Masonic Family Center, 1110 W. East Avenue, Chico, CA
Sponsored by: Sacramento River Watershed Program, State Water Resources Control Board, California Dept. of Water Resources
Cost: $50-$75
Contact: Bobbie Cox 530-758-2100 or 1-800-815-3330; harcomp@aol.com

Assistance Update

CFIP funding now available

CFIP, the California Forest Improvement Program, is up and running! For information or to submit an application, contact Jill Butler in Santa Rosa at (707) 576-2935, Tom Sandelin in Fresno at (559) 243-2935, or Tom Porter in Riverside at (909) 320-6120. The complete CFIP User's Guide, including forms, is on the Forest Stewardship Website at ***http://ceres.ca.gov/foreststeward/CFIP.html.***

Practice	1999 Cap Rate	90% Cost Share*	75% Cost Share
Management Plan High	$3500 + $3.00 / acre 1ST 160 acres $2.50 / acre each additional acre to 1000 **	$3150 + $2.70 / acre 1st 160 acres $2.25 / acre each additional acre to 1000	$2625 + $2.25 / acre 1st 160 acres $1.88 / acre each additional acre to 1000
Management Plan Revised/ Low	$1750 + $1.40 / acre	$1575 + $1.26 / acre	$1313 + $1.05 / acre
RPF Supervision	$75 / acre 1st 5 acres $40 / acre each additional acre	$68 / acre 1st 5 acres $36 / acre each additional acre	$56 / acre 1st 5 acres $30 / acre each additional acre
Site Prep Mechanical Light Mechanical Heavy Manual	 $220 / acre $300 / acre $400 / acre	 $198 / acre $270 / acre $360 / acre	 $165 / acre $225 / acre $300 / acre
Trees & Planting Average Difficult	 $160 / acre $200 / acre	 $144 / acre $180 / acre	 $120 / acre $150 / acre
Tree Shelters	$260 / acre	$234 / acre	$195 / acre
Pre-commercial Thinning Moderate Heavy	 $260 / acre $400 / acre	 $234 / acre $360 / acre	 $195 / acre $300 / acre
Pruning	$75 for 50 trees / acre $150 for 100 trees / acre $225 for 150 trees / acre	$68 for 50 trees / acre $135 for 100 trees / acre $203 for 150 trees / acre	$56 for 50 trees / acre $113 for 100 trees / acre $169 for 150 trees / acre
Follow up	$150 / acre	$135 / acre	$113 / acre
Release Chemical Non-Chemical	 $200 / acre $300 / acre	 $180 / acre $270 / acre	 $150 / acre $225 / acre
Land Conservation/ Wildlife/Fisheries Projects	Cost based on problem. Use SIP rates as a guide		

* The 90% rate will cover all projects on timberland substantially damaged by widfire, insects, diseases, wind, floods, landslides or earthquakes
* * Rates for plans larger than 1000 acres are negotiated.

Updated Cost Share Directory

A new edition of the classic ***Cost Share and Assistance Programs for Individual California Landowners and Indian Tribes*** will soon be rolling off the presses.

This annual publication covers funding sources from state and federal agencies as well as a few private organizations. It provides background on the goals and types of projects supported by each program, limitations, descriptions of successful projects, and contact information. There is a second listing of programs by focus (e.g., forest management, wildlife and wildlife management, rural community economic development, habitat restoration and land conservation, watershed and wetland protection and restoration, etc.).

The Directory will be available through the Forest Stewardship Helpline at 1-800-738-TREE or can be downloaded in its entirety at the Stewardship Website ***http://ceres.ca.gov/foreststeward.***

Other funding info

Besides the Cost Share Directory, other funding information can be found at the Stewardship Website. From the home page, go to "financial assistance" and to "related sites" for links to funding sources, information on how to write successful proposals, and much more.

Regulation

Stream alterations under Section 1603

"The law hasn't changed, but the interpretation has," explained Jim Steele, of California Department of Fish & Game, when asked about the Lake and Streambed Alteration Agreement (1603) process.

Prompted by lawsuits, the Department of Fish & Game (DFG) modified its Lake and Streambed Alteration Program to comply with CEQA, the California Environmental Quality Act. It has been able to do this in a streamlined manner that helps landowners come up with an acceptable agreement ***before*** the project enters CEQA review.

How does the process work?

When planning an activity that will require a Lake and Streambed Alteration Agreement, a landowner must submit notification forms to DFG which then evaluates the project (usually with a site visit) and suggests ways to mitigate any potential impacts to fish or wildlife. If the landowner agrees to these suggestions, they are incorporated into the Agreement. At this point the project enters CEQA review and is circulated to other agencies. Through this cooperative process, the project is usually environmentally protective enough get a negative declaration or exemption that will allow the project to go forward.

When is notification required?

According to Section 1603 of the Fish and Game Code, anyone who proposes a project or activity that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use any materials from a streambed" must notify DFG before the project begins.

Notification is generally required for any activity (e.g. timber harvest, road repairs, crossings, water diversions, gravel quarrying) that will take place in the vicinity of a river, stream, lake, or its tributaries. This includes streams that flow at least periodically through a channel that supports fish or other aquatic life or watercourses that support (or have supported) riparian vegetation (including some that don't support aquatic life).

Pre-consultation

Before submitting the notification package and fees, it's good to contact your local DFG office to discuss the proposed project and determine if notification is necessary. You can also find out if there are any concerns regarding the project. If so, they may have some suggestions for ways to reduce impacts to fish or wildlife before you submit your proposal.

Notification package

If notification is required, submit a package to the regional DFG office with:

- ◆ Notification of Lake or Streambed Alteration (Form FG 2023)
- ◆ Project Questionnaire (Form FG 2024)
- ◆ All necessary attachments including project drawings
- ◆ Fees

The next step

When the notification package is complete, DFG evaluates the project (an incomplete package will be returned). If they decide that a Lake or Streambed Alteration Agreement is not necessary, the project may go forward immediately.

However, if there are concerns about possible impacts on fish or wildlife, DFG develops a draft Lake or Streambed Alteration Agreement with proposed protective measures. If the proposals are acceptable, they will be incorporated into the draft which the landowner signs. The project then goes through CEQA review and, when it is signed by DFG, work can begin.

If the landowner does not choose to accept the DFG proposals, a meeting is arranged to try to come up with a mutually agreed upon set of mitigation measures. In the event an agreement cannot be reached, an arbitration panel can be established to resolve the issues.

Additional points

- ◆ You may need to contact other government agencies before starting work. Depending on the nature and location of your project, you may need to contact city and county planning departments, or other state or federal agencies (e.g. CDF, Coastal Commission, Army Corps of Engineers). If those agencies require CEQA review, it's best to let them be the lead agency so DFG can give you a permit without this delay.
- ◆ DFG must automatically renew a Lake or Streambed Alteration Agreement when it expires unless there has been a substantial change in conditions. An additional fee is required.
- ◆ Emergency work (e.g. immediate emergency work to protect life or property) does not require a Lake or Streambed Alteration Agreement. However, DFG must be notified within 14 days of the work.
- ◆ DFG, in concert with CDF, has developed an alternate process for Timber Harvest Plans (THP). Any stream crossings to be used during a harvest are defined in the THP and a series of additional questions and information about each crossing is included in the THP. Once the THP is approved, then the CEQA requirements are met and the 1603 permit is issued much more quickly.

Resources

More information on the Lake and Streambed Alteration Program (including forms, fees schedules, and regional office locations) are on the web at ***http://www.dfg.ca.gov/wahcb/1600.html***

CEQA Guidelines are available at ***http://ceres.ca.gov/planning.***

The Fish and Game Code is at ***http://www.leginfo.ca.gov/calaw.html.***

All of these documents are also available at any DFG regional office, county law libraries, and at the State Library. ▲

Hot Topics

New studies add pieces to the puzzle

Currently, a number of studies and reports are in progress to try to get some solid answers to questions about the impacts of forestry practices on watersheds. Each study adds a piece to our understanding of watersheds. The information coming out of these studies, and the spirited discussions surrounding them, have the potential to change forestry practices and the Forest Practice Rules. As in any time of change, it is important to understand the issues and be involved in the discussions. The following are significant recent reports:

Hillslope Monitoring Study

The Monitoring Study Group of the State Board of Forestry and Fire Protection recently released an interim report on their ongoing hillslope monitoring study. The study evaluates both the implementation and effectiveness of the Rules in keeping soil on the hillslope and maintaining canopy cover over watercourses.

The study looked specifically at hillslope erosion after harvest in the five areas considered the most potentially problematic for erosion–roads, skid trails, landings, watercourse crossings, and watercourse and lake protection zones (WLPZs).

The study is still going on, but results to date show that roads and their associated crossings are the areas most often responsible for delivering sediment to watercourses. Skid trails, landings, and WLPZs had far fewer erosion problems.

The study also found that the Forest Practice Rules were generally adequate in preventing hillslope erosion. In many cases, failures occurred because of noncompliance with the Rules *(see table below)*. Those Rules with the poorest implementation record included crossing design, construction, and maintenance and road-related drainage structure design, construction, and maintenance. In summary, hillslope erosion problems related to timber operations were almost always associated with improperly implemented Rule requirements. Results presented in this interim report do not allow us to draw conclusions about whether the existing Rules are providing properly functioning habitat for aquatic species.

The Monitoring Study Group made some preliminary recommendations regarding the need for developing training programs for Registered Professional Foresters, Licensed Timber Operators, and equipment operators in those areas that were found to have the poorest implementation.

This report is available on the internet at ***http://www.fire.ca.gov/bof/board/board_current_docs.html*** *or call Pete Cafferata at (916) 653-9455.*

Forest Practice Rules with the greatest incidence of noncompliance
—Interim Hillslope Monitoring Program Results

Location	Rule #	Description
Roads/skid trails	914.6(c)	Waterbreak spacing equals standards
Roads/landings	923.1(f)	Adequate numbers of drainage facilities
Roads	923.2(b)	Sidecast minimized for slopes >65% for distances >100ft
Roads	923.1(d)	For slopes >65% or 50% within 100 ft of WLPZ, soil treated to minimize erosion
Roads/crossings	923.2(h)	Drainage structures of sufficient size, number and location to minimize erosion, carry runoff water
Roads/crossings	923.3(o)	No discharge onto erodible fill unless energy dissipators are used
Roads	914.6(g)	Waterbreaks have an embankment of at least 6 inches
Rods/crossings	923.4(C)	Waterbreaks maintained to divert into cover
Roads	923.2(h)	Drainage structures of sufficient size, number and location to minimize erosion
Roads	914.6(f)	Waterbreaks installed to discharge into cover
Roads/landings	923.1(a)	If landing on road >1/4 ac or required substantial excavation,—shown on THP map
Roads	914.6(g)	Waterbreaks constructed with a depth of at least 6 inches cut into firm roadbed
Roads	923.2(p)	Waterbreaks installed according to standards in 914.6
Skid trails	914.6(f)	Where waterbreaks cannot disperse runoff, other erosion controls installed as needed
WLPZ	916.4(a)	Sensitive conditions—erodible banks identified in THP
Crossings	923.3(d)(1)	Removed fills excavated to reform channel
Crossings	923.8	Abandonment—minimizes concentration of runoff water
Crossings	923.3(d)	Fills across channels built to minimize erosion
Crossing	923.4(1)	Trash racks installed where abundant LWD
Crossings	923.8(d)	Abandonment—pulling/shaping of fills
Crossings	923.4(n)	Crossings/approaches maintained to avoid diversion
Crossings	923.3(d)(2)	Removed crossings—cut bank sloped back to prevent slumping
Crossings	923.4(d)	Crossing open to unrestricted passage of water
Crossings	923.4(d)	Trash racks installed where needed at inlets
Crossings	923.3(e)	Crossings/fills built to prevent diversion

Report of the Scientific Review Panel on California Forest Practice Rules and Salmonid Habitat (aka WPRC Report)

The Forest Practice Rules "do not ensure protection of anadromous salmonid populations…" was the conclusion of the Scientific Review Panel report. This review, the result of an agreement between the California Resources Agency and the National Marine Fisheries Service, looked at the adequacy of the Rules in protecting salmonid species.

The report was based on interviews with 29 constituency groups including state and federal agency representatives, environmental representatives, large/small landowners, foresters, geologists, watershed specialists, fisheries representatives, and others. The Panel also visited Timber Harvest Plan (THP) sites in Humboldt and Mendocino counties.

The conclusions and recommendations that came out of this report are potentially far-reaching. The Panel found that the Forest Practice Rules do not currently protect anadromous salmonid populations because they can't assess the cumulative effects of timber harvesting and other activities on a watershed scale.

The centerpiece of the report is a recommendation that the state take on the job of conducting watershed analyses in all watersheds within the areas under discussion.

Recognizing that a watershed analysis program may take several years to implement, the Panel suggested a number of steps that could be taken immediately, including identification of high-priority sediment problems, assessment of fish migration corridors, prioritization of barriers to be removed or replaced, and modification of the Forest Practice Rules. In addition, they recommended that, prior to the completion of watershed analyses, the Board of Forestry consider the possibility of harvest limitations based on the percentage of watershed area harvested per decade.

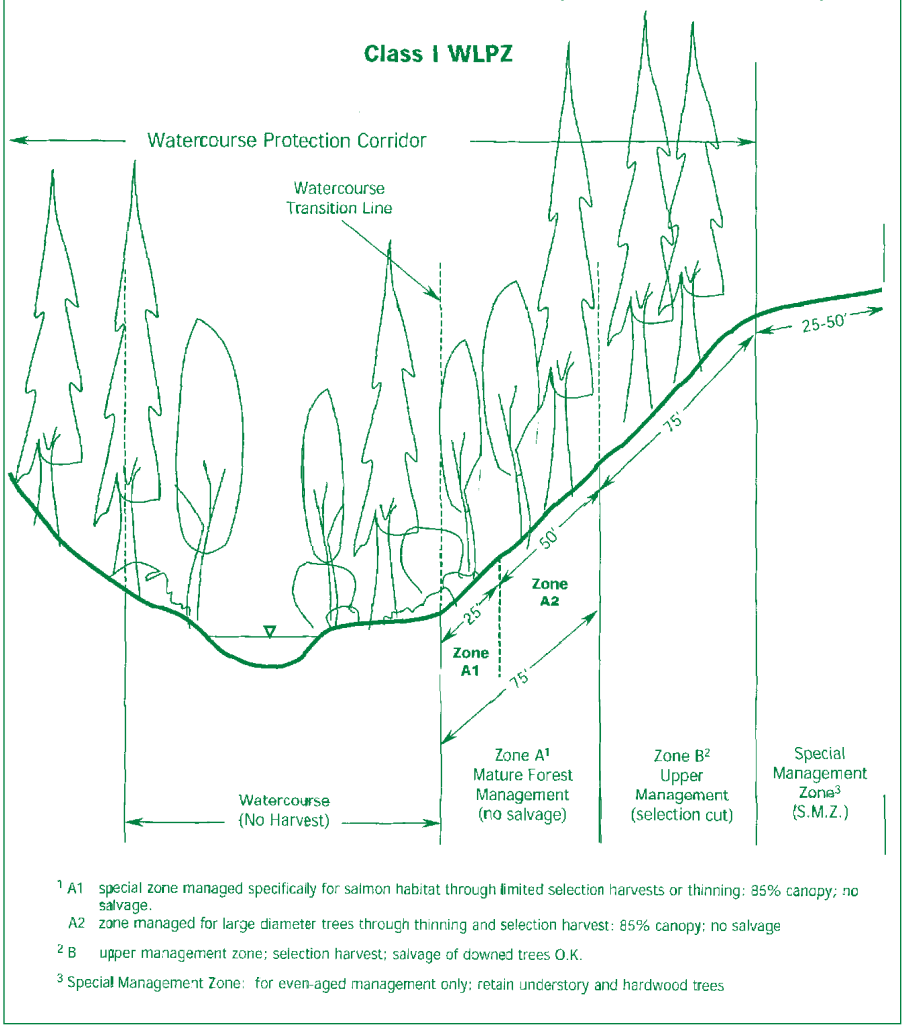
Specific Rule change recommendations included stronger enforcement of Forest Practice Rules governing watercourse protection *(see illustration above),* road construction and maintenance, and winter operations.

The report also looked at the THP process and found it cumbersome. A number of improvements were suggested to decrease paperwork and improve its use as a disclosure and operational document, giving the THP a field emphasis. Following the more comprehensive watershed analysis, THPs could reference that document without redoing it. A number of more specific recommendations were made to support agency involvement and increase Registered Professional Forester (RPF) involvement in the implementation of the THP.

The report also recommended the use of incentives such as tax deductions, conservation easements, and other tax benefits to encourage landowners to improve and maintain salmonid habitat.

Download a copy of this report at ***http://www.ceres.ca.gov.***

Class I Watercourse Protection Standards Proposed in the WPRC Report



[1] A1 special zone managed specifically for salmon habitat through limited selection harvests or thinning: 85% canopy; no salvage.
A2 zone managed for large diameter trees through thinning and selection harvest: 85% canopy; no salvage

[2] B upper management zone; selection harvest; salvage of downed trees O.K.

[3] Special Management Zone: for even-aged management only; retain understory and hardwood trees

Other Reports

The report of the UC Committee on the Scientific Basis for Evaluation of Cumulative Watershed Effects in Forested Landscapes (Freshwater Creek Committee) is due to be released next month. You can find it and other studies at the UC Center for Forestry website, ***http://nature.berkeley.edu/forestry.*** ▲

Seasonal Stewardship

Put unneeded roads to bed

Roads have been implicated repeatedly in causing erosion and sediment delivery to watercourses. In order to protect water quality, all roads should be continually inspected and maintained. This takes time and money. When a road is no longer needed, you can save this time and expense by closing it.

Goals of road retirement

Closing a road is more than simply blocking it off from traffic. It must be left in a condition that requires little or no maintenance.

Most problem areas arise from:

- stream diversions (the leading cause of serious gullying in many areas)
- stream crossing washouts and fill failures
- gullies and landslides fed by road runoff
- surface erosion from road surfaces and fillslopes

These problems can be avoided with the use of techniques that can minimize long-term damage to natural resources. Since the purpose is to avoid erosion and sediment delivery to streams, only those parts of the road with potential problems need to be treated.

An added benefit of proper closure is that fewer costly repairs will be needed if the road is later reopened.

Stream crossing excavations

Stream crossings need to be completely removed for closure. This involves excavating and removing all materials that were used to make the crossing as well as reshaping the stream channel to its original contour.

Fill material should be excavated to recreate the original channel grade (slope and orientation) with a channel bed as wide or wider than the original watercourse *(see illustration)*. The sideslopes should be graded back to a stable angle and bare soils mulched, seeded and/or armored to minimize erosion until vegetation can take over.

Culverts and log crossings also need to be completely removed. It is not enough to simply excavate and remove a culvert; the entire fill must also be removed with no soil left in or next to the channel. The excavation should extend down to the level of the original channel bed, with a channel as wide or wider than the original.

Unstable areas

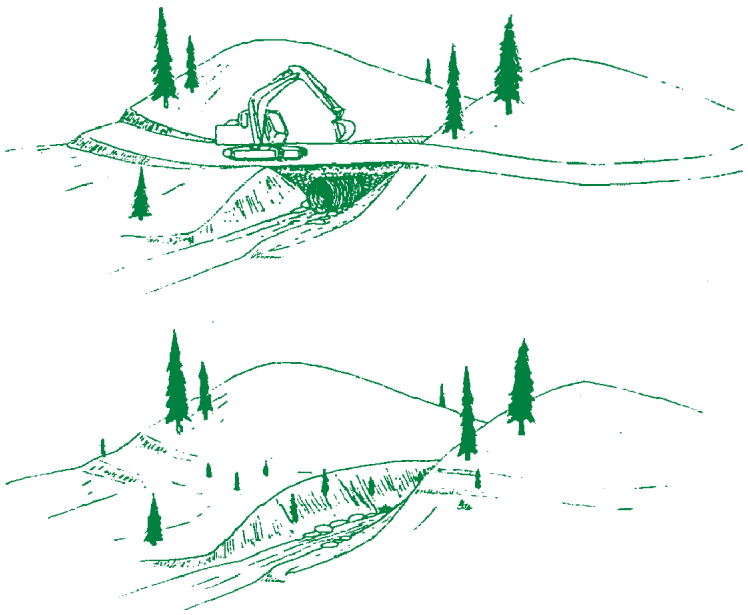
Any potentially unstable road material should be excavated and treated during road closure. These sites most often occur around landings, on roads built on steep slopes, where roads have been built over springs or seeps, or where they have been cut into steep headwater swales or dips in the hillside. All excavated material should be put in a stable location and revegetated.

No active ditches should be left at the base of an unstable cutbank since they are likely to eventually become plugged and cause water to be diverted onto the road surface.

Road surface runoff and other drainage structures

Retired roads should have adequate,

Stream Crossing Excavations



On roads that are to be closed, all stream crossing culverts and fills should be removed. Stream crossing excavations are best performed using an excavator. Spoil can usually be stored on the road bench adjacent to the crossing, provided it is placed and stabilized where it will not erode and enter the channel.

–from Furniss, et. al., 1991 in the Handbook for Forest and Ranch Roads

self-maintaining surface drainage so that the road surface will not erode to a stream. Any ditched segments should be outsloped or drained with cross road ditches. Inside road ditches should be eliminated so that water is not diverted to form gullies. Outside road berms should be removed to encourage continuous drainage.

Cross-road drains should occur frequently enough to prevent erosion. Cross drains that carry spring flow may require armoring at their outlet and should be discharged into vegetation to filter water and sediment before runoff reaches a stream.

Planting roadbeds

Unused roads can be ripped and planted to reduce runoff and erosion. A benefit of this is the increase in forested land. The road surface should be ripped to a depth of 15–24 inches, outsloped at least 4% more than the road grade, waterbarred, seeded and planted. Tree growth on compacted or rocked road surfaces is generally much slower than adjacent areas unless the roadbed is mechanically ripped.

Erosion Control

Most erosion control is accomplished by:

- physically excavating stream crossings, unstable fills and landing sidecast
- installing cross-road drains
- road ripping
- local road outsloping

These techniques are usually performed by heavy equipment while mulching, installation of energy dissipators (e.g., rocks and woody debris), seeding and planting is done by hand.

The banks of all excavated stream crossings, as well as all bare soil areas adjacent to a watercourse, should be mulched with straw at 3,000 to 5,000 lbs/acre. On slopes over 45%, or where high winds are common, mulches need to be tacked, punched or secured to the ground. Mulches can also be purchased in rolls that can be secured to the ground.

Any road not regularly inspected and maintained should be "put to bed" so it will not have the potential to impact streams and water quality. Roads should never be abandoned by simply blocking them off or letting vegetation take over without first performing proactive erosion control work.

—Handbook for Forest and Ranch Roads

Rock and/or woody debris can be placed at the outlets to cross-road drains expected to carry substantial spring-flow. Rock armor is generally preferable because it is more permanent and adjusts its position when there is minor channel downcutting.

Revegetation

Vegetation is the ultimate, long-term erosion control agent so it is important to encourage the growth of appropriate species.

Erosion control measures such as mulch or silt fences are often needed for the first year or two following road closure. Early successional plants, eg. grass and legumes, can come in quickly and reduce surface erosion while improving soil condition. Legumes add nitrogen to poor soil. Trees and shrubs are established more slowly but provide longer-lasting cover and stronger root systems to enhance slope stability.

Seeding should be done immediately after the surface is disturbed; the rough surface provides a more favorable environment for germination and growth. Mulches increase seedling establishment by improving germination and controlling erosion until the plants become established. Seeding can be done by hand or vehicle or by hydraulic seeding from a pump truck or trailer. The seed must be evenly distributed to provide continuous cover.

Fertilizers may be necessary in severely disturbed sub-soils and cut-banks. Soils can be tested for nutrient content or a commercial mix used.

Seed mixes are a good way to get a variety of plant types. Consider:

- Timing. Seeds should be planted immediately after soil disturbance and a minimum of 6 weeks before periods of drought or frost. Fall seeding is best.
- Mixtures should include annual grasses (for quick growth), perennial grasses (better root systems), and legumes (for nitrogen).
- Use native plants adapted to the area. Be sure to avoid exotic pest species that may get out of control!

After seeding, plant bare soils with trees and shrubs to provide the long-term ground cover and soil binding capabilities needed for effective erosion prevention, soil development and slope stability on heavily disturbed sites.

–from the Handbook for Forest and Ranch Roads: A Guide for planning, designing, constructing, reconstructing, maintaining and closing wildland roads *by William Weaver and Danny Hagans. Available from the Mendocino County RCD (707) 468-9223 for $20. It's a bargain and a superb resource!*

Another good road book is A Landowner's Guide to Building Forest Access Roads *by Richard L. Wiest. It is available online at* ***http://willow.ncfes.umn.edu/accessroads/accessroads.htm*** *where you can also order a hard copy.* ▲

Resources

Stream Care Guide for Landowners

The American River Watershed Group and Placer County RCD have just completed a creative new resource entitled ***Stream Care Guide: Management Tips for Streamside Property Owners.*** Although written for the Sierra Nevada foothills, this information can be adapted to any area.

The Stream Care Guide is easy to read and to the point. There is a short section on how a watershed works, then most of the rest is devoted to potential problems and their fixes.

Mixing common sense with watershed understanding, readers get such good advice as "the best way to avoid flood problems is to find out where the floodplain is and don't build there!" This is followed by specific recommendations on how to reduce the frequency or extent of flooding.

Each problem is presented in a few well-chosen paragraphs which give the reader the knowledge necessary to make a good streamside management decisions. The ten management tips cover important topics including erosion, flooding, waste disposal, hazardous materials, natural debris, vegetation, livestock, pollution, water diversion, fish, and streambank conditions and problems.

For copies of this guide, contact the Placer RCD at (530) 885-3046 x6.

Technical Assistance Resources

Many agencies are available to provide technical assistance, referrals, information, education, land management plan assistance, and advice.

California Stewardship Helpline (800) 738-TREE; ncsaf@mcn.org

California Department of Forestry and Fire Protection
Forest Landowner Assistance Programs
Jim Geiger
(916) 653-8286
jim_geiger@fire.ca.gov

California Association of RCDs
Thomas Wehri
(916) 447-7237
carcd@ns.net

California Resources Agency:
California Environmental Resources Evaluation System (CERES)
Deanne DiPietro
(916) 653-8614
deanne@ceres.ca.gov

Natural Resources Conservation Service
Jerry Reioux
(530) 792-5655
jerry.reioux@ca.usda.gov

Farm Service Agency
Larry Plumb
(530) 792-5520

California Dept of Fish & Game
Barrett Garrison
(916) 653-1738
bagarris@hq.dfg.ca.gov

U.C. Cooperative Extension Forestry
John LeBlanc
(510) 642-6678
jleblanc@nature.berkeley.edu

Richard Harris
(510) 642-2360
rrharris@nature.berkeley.edu

Gary Nakamura
(530) 224-4902
gmnakamura@ucdavis.edu

USDA Forest Service
Sandra Stone
(707) 562-8918
sstone/r5@fs.fed.us

Keeping Current

Want to keep up with the discussions, studies, and legislation regarding forest practices? It's not easy, but much of the information you want is readily available, especially if you go online.

A simple way to keep up with Board of Forestry activities is to get on their mailing lists by calling (916) 653-8007. There are three lists: one will provide notification of any regulatory changes, one for the agenda and another for the minutes. The monthly meetings are open to the public.

The CDF website at ***http://www.fire.ca.gov*** has a section called "hot topics." You can go from that site to the Board of Forestry (***http://www.fire.ca.gov/bof/board/board_current_docs.html***) for current and archived documents including agendas and minutes of Board of Forestry meetings.

CERES, an information system of the Resources Agency, has an area called "current interest" at ***http://ceres.ca.gov***.

The Forest Practice Rules are online at ceres ***http://ceres.ca.gov/topic/env_law/fpa/reg/toc.html***.

Find California Coastal Commission reports and information at ***http://ceres.ca.gov/coastalcomm/index/html***.

The Watershed Management Council (***http://watershed.org/wmc/index.html***) has an impressive collection of articles on a number of watershed issues.

Lists of forestry-related legislation is compiled by various advocacy groups, each of which has its own point of view. Two of these include:

◆ Forest Landowners of California at ***http://www.forestlandowners.org/legislation.htm***

◆ Planning and Conservation League ***http://www.pcl.org/LEG/environmental_bills_abr.html***

Calendar

November 11–12, 1999

Ecology & Management of Lakes and Reservoirs
Berkeley, CA
UC Berkeley Extension
510-642-4111, fax 510-642-0374; $295
www.unex.berkeley.edu/enroll

November 13 & 14, 1999

Edible and Medicinal Mushrooms: Cultures & Techniques
Berkeley, CA
University of California Berkeley
Betsy Ringrose 510-643-7008

November 16–19, 1999

Fire Management: Emerging Policies and New Paradigms
San Diego, CA
University of California Extension, Davis
800-752-0881, fax 530-757-8558
lunrinfo@unexmail.ucdavis.edu; $255-$280
http://universityextension.ucdavis.edu
Jan van Wagtendonk 209-379-1885 or
Kevin Shaffer 916-327-0713

November 18, 1999

Wildland Fire Seminar: Fire Management–Phil Weatherspoon, USFS, PSW
Berkeley, CA, 103 Mulford Hall
UC Berkeley
http://www.cnr.berkeley.edu/wfrg/

November 18–19, 1999

California Forest Pest Council: Assessing the Impacts of Air Pollution and Burning on California Forests
Sacramento, CA
California Forest Pest Council
Susan Frankel 707-562-8917; *sfrankel/r5@fs.fed.us*

December 2 & 3, 1999

Selling Forest Products
Corvallis, OR
Oregon State Univ, College of Forestry
Conference Coord. 541-737-2329;
fax 541-737-4966; *conference@cof.orst.edu*
http://www.cof.orst.edu/cof/extended/conferen/

December 2, 1999

Wildland Fire Seminar: Prescribed Fire, Air Quality And Title 17: Eric Lindsey, Meteorologist, Cal. Air Resources Board
Berkeley, CA, 103 Mulford Hall
UC Berkeley
http://www.cnr.berkeley.edu/wfrg/

December 3, 1999

CLFA Annual RPF Exam Preparation Seminar
Sacramento, CA
CLFA
Hazel Jackson 209-293-7323, fax 209-293-7544; *clfa@volcano.net*
tentative date *www.clfa.org*

January 10–14, 2000

Natural Resources Communication Workshop
Chico, CA
California State University and The Wildlife Society
Dr. Jon K. Hooper 530-898-5811 or 898-6408, fax 530-898-6557,
jhooper@csuchico.edu; $595
http://www.csuchico.edu/

January 13 & 14, 2000

What is a Healthy Watershed?
Chico, CA
Sacramento River Watershed Program, State Water Resources Control Board, Cal. Dept. of Water Resources
Bobbie Cox 530-758-2100;
harcomp@aol.com; $50-$75

January 18–20, 2000

Forest Vegetation Management Conference: Reforestation for the New Millennium–Back to our Roots
Redding, CA
Sherry Cooper 530-224-4902, fax 530-224-4904; *shcooper@ucdavis.edu;* $90
Randy McDaniel 530-246-3378
rveh@aol.com

January 21 & 22, 2000

NorCal Society of American Foresters Annual Winter Meeting
Rancho Cordova, CA
NorCal SAF
707-562-8685; *Jensen_Jerry/r5@fs.fed.us*

January 26, 2000

Federal Forestland Tax Management for the New Millennium
Eugene, OR
N. Pacific Rim Creations
William Schlosser 509-334-1799,
fax 509-332-8944; *schlosser@turbonet.com*
Before 12/15 $115; after $140
For forestland owners, professional service providers
www.prc.turbonet.com/seminarindex.htm

January 27–29, 2000

Field Biology in the New Century: Changing Roles of the Public and Private Sectors
Riverside, CA
Western Section of the Wildlife Society
Program Chair, Mike Morrison
wildmlm@worldnet.att.net
http://www.tws-west.org/

January 27–29, 2000

California Forestry Association Meeting
Napa, CA
CFA
Eleanor Anderson, *eleanora@cwo.com*

February 23, 2000

Water Resources Planning in California
Davis, CA
UC Davis Extension
800-752-0881, fax 530-757-8558; $240
www.universityextension.ucdavis.edu>
Section 993U222

For more information, call the number given or the Forest Stewardship Helpline, 1-800-738-TREE. To submit an event or to receive this calendar by e-mail, contact Sherry Cooper, shcooper@ucdavis.edu.

The Forest Stewardship Website has a new look!

Comprehensive resource calendar, funding information, archived articles, links to forestry-related sites, contact people…

Check it out at http://ceres.ca.gov/foreststeward

Alphabet Soup

What did they say?

Attempting to read the Forest Practice Rules or numerous related studies and reports can be quite an adventure. Not only do they involve a lot of unavoidable technical information, there is also the widespread use of abbreviations and acronyms that make the documents all the more confusing.

Those actively working in these areas can translate these abbreviations without thinking, but their use can make it difficult for novices to follow the discussion. The list below should get you through the major documents covered in this newsletter:

API–Antecedent Prescription Index
BOF–State Board of Forestry & Fire Protection
DO–Dissolved Oxygen
CCC–California Coastal Commission
CCR–California Code of Regulations
CDF–California Department of Forestry & Fire Protection
CEG–Certified Engineering Geologist
CEQA–California Environmental Quality Act
CI–Cumulative Impacts
CMP–Coastal Management Plan
CWE–Cumulative Watershed Effects
CSES–Critical Sites Erosion Study
CZARA–1990 Federal Coastal Zone Act Reauthorization Amendment
DBH–Diameter at Breast Height
DFG (also **DF&G**)–Department of Fish & Game
DMG–Division of Mines & Geology (Department of Conservation)
DTM–Digital Terrain Modeling
EEZ–Equipment Exclusion Zone
EHR–Erosion Hazard Rating
ELZ–Equipment Limitation Zone
EPA (also **USEPA**)–Environmental Protection Agency
ESA–Endangered Species Act
ESU–Evolutionarily Significant Unit
FEMAT–Forest Ecosystem Management Team
FPA–Forest Practice Act
FPR–Forest Practice Rules
FWA–Federal Interagency Watershed Analysis
GIS–Geographic Information System
GPS–Global Positioning System
HCP–Habitat Conservation Plan
LTSY–Long Term Sustained Yield
LTO–Licensed Timber Operator
LWD–Large Woody Debris
MAA–Management Agency Agreement
MOA–Memorandum of Agreement
MOU–Memorandum of Understanding
MSG–Monitoring Study Group
MTHP–Modified Timber Harvesting Plan
MWAT–Maximum Weekly Average Temperature
NEPA–National Environmental Policy Act
NMFS–National Marine Fisheries Service
NOAA–National Oceanic and Atmospheric Administration
NRC–National Research Council
NTMP–Nonindustrial Timberland Management plan
PALCO–Pacific Lumber Company
PHI–Pre-Harvest Inspection
PTEIR–Programmatic Timber Environmental Impact Report
PTHP–Program Timber Harvesting Plan
QA/QC–Quality Assurance/Quality Control
RCD–Resource Conservation District
RPF–Registered Professional Forester
RWQCB–Regional Water Quality Control Board
SMZ–Special Management Zone
SOZ–Special Operating Zone
SRP–Scientific Review Panel
SWRCB–State Water Resources Control Board
SYP–Sustained Yield Plan
THP–Timber Harvesting Plan
TMDL–Total Maximum Daily Load
USDA–U.S. Department of Agriculture
USDI–U.S. Department of the Interior
USFWS–U.S. Fish & Wildlife Service
USGS–U.S. Geological Service
UTM–Universal Transverse Mercator
WLPZ–Watercourse and Lake Protection Zone
WPRC–Watershed Protection and Restoration Council
WQM–Water Quality Management
WRRI–Watershed Relative Risk Index
WTL–Watercourse Transition Line
WWA–Washington Watershed Analysis

How can the *Forestland Steward* newsletter help you?

I'd like to see more information on _____

_____

My suggestion is _____

_____

❑ Add me to the mailing list / ❑ Change my address:

Name_____

Address _____

City, Zip _____ Phone_____

Send to CDF, Forestry Assistance, P.O. Box 944246, Sacramento, CA 94244-2460.
Phone: (916) 653-8286; Fax: (916) 653-8957; e-mail: jim_geiger@fire.ca.gov