

**Coolwater and Los Pinos
Community Wildfire Protection Plan
October 2012**



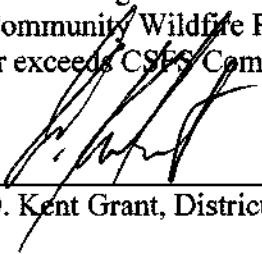
Prepared for:
Coolwater and Los Pinos Subdivisions
and
Upper Pine River Fire Protection District

Prepared by:
Short Forestry, Mancos, Colorado

Community Wildfire Protection Plan: Coolwater/Los Pinos

Approval

The Durango District of the **Colorado State Forest Service** has reviewed this Community Wildfire Protection Plan and approves its content and certifies that it meets or exceeds CSFS Community Wildfire Protection Plan minimum standards.




D. Kent Grant, District Forester

12/14/2012

Date

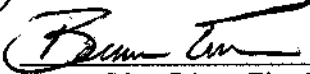
The following entities have received a copy of this Community Wildfire Protection Plan and agree with and support its content and recommendations.



Coolwater/Los Pinos Firewise Ambassador

October 17, 2012

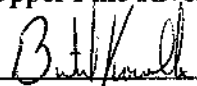
Date



Upper Pine River Fire Protection District

December 1, 2012

Date



La Plata County Office of Emergency Management

December 1 2012

Date

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1. INTRODUCTION

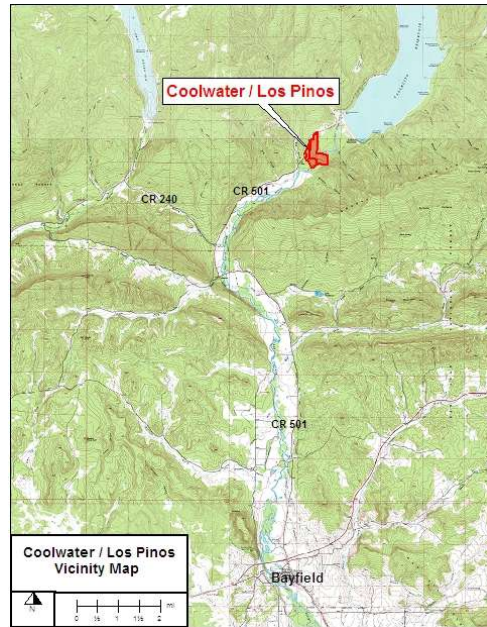
Community Wildfire Protection Plans are authorized by the Healthy Forests Restoration Act (HFRA) of 2003. HFRA places renewed emphasis on local community wildfire protection and response planning by extending a variety of benefits to communities with a wildfire protection plan in place. Among the benefits are the abilities to participate in establishment of fuels treatment priorities for both federal and non-federal lands surrounding communities, establishment of a local definition and boundary for the Wildland-Urban Interface (WUI), and enhanced opportunities for cost-sharing of community-based fuels treatments.

The Coolwater and Los Pinos communities have recognized that the subdivisions are at risk from wildfires moving into or originating within the subdivisions. A local effort to educate homeowners and develop defensible space has been underway by the FireWise Council of Southwest Colorado and the Upper Pine River Fire Protection District (UPRFPD). Development of a Community Wildfire Protection Plan (CWPP) for Coolwater and Los Pinos is the next step in that effort.

2. BACKGROUND

A. Location

This CWPP covers the Coolwater and Los Pinos subdivisions and their defined WUI. Coolwater and Los Pinos are located immediately adjacent to one another in La Plata County in southwest Colorado, approximately 10 miles north of Bayfield just downstream from Vallecito Reservoir. Elevations range between 7440 and 7640 feet.



B. Community

The Coolwater and Los Pinos subdivisions are 96 acres with 49 residences and 43 acres with 3 residences respectively. The residences are single-family structures with exterior finishes ranging from painted plywood or hardboard siding to logs to metal. Coolwater has several mobile homes and some lots are occupied seasonally with travel trailers or recreational vehicles. Roof coverings are generally metal or asphalt shingle but there are at least two structures with wood shingles. Many have wood decks and porches. The water supply for the subdivision comes from individual wells. Coolwater is accessed by

Deer Trail Lane and Easy Street off County Road 501. Los Pinos is accessed via Los Pinos Drive, also from County Road 501. For convenience, the subdivisions will be referred to as Coolwater/Los Pinos in the rest of this document.

Coolwater /Los Pinos is located in a ponderosa pine/Gambel oak forest. A characteristic of the subdivision is the retention of the native trees and shrubs during construction of the residences. The overall context is rural. Some homes have small irrigated yard areas, but most have native vegetation right up to the residence.

The wildlife present in the area includes all the species expected in the lower montane areas of the central Rocky Mountains. Mule deer (*Odocoileus hemionus*), elk (*Cervus elaphus*), black bear (*Ursus americanus*), cougar (*Felis concolor*), coyote (*Canis latrans*), porcupine (*Erethizon dorsatum*), skunk (*Spilogale spp*), and river otter (*Lontra canadensis*) are some of the mammalian species. Merriam's turkey (*Meleagris gallopavo merriami*), common raven (*Corvus corax*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), horned owl (*Bubo virginianus*), mountain and western bluebirds (*Sialia currucoides* and *S. Mexicana*), downy woodpecker (*Picoides pubescens*), white-breasted nuthatch (*Sitta carolinensis*), and mountain chickadee (*Parus Gambeli*) are some of the avian species. Osprey (*Pandion haliaetus*) fish in the Los Pinos River during the summer months and there are nests above the dam along Vallecito Reservoir. The American bald eagle (*Haliaeetus leucocephalus*) is an occasional winter visitor. No US Fish and Wildlife Service listed "Threatened" or "Endangered" species are known to inhabit the subdivision. The bald eagle was previously a listed species but was removed from the "Threatened" list in the lower 48 states in 2007.

The subdivisions sit on riverside terraces. Slopes range from 0 to 30% with the steepest slopes along the Los Pinos River in the southwest part of the Coolwater subdivision. Average gradient from south to north is +5% and east to west is +7%. Slope shapes are convex. Aspect is generally south-southeast.

Annual precipitation for the subdivision is approximately 30 inches, with the wettest months being July, August and September. May and June are relatively dry, with a summer "monsoon" in July and August (source: Western Regional Climate Center). Early monsoonal storms are often characterized by dry thunderstorms with lightning and strong, variable outflow winds. The largest wildfires in the past 20 years in La Plata County have occurred from early June into early August.

C. Local Fire History

The 76,000 acre Missionary Ridge Fire burned one cabin in the Los Pinos subdivision in 2002. Other large wildfires have occurred in La Plata County over the past twenty years. Examples include the Black Ridge Fire (1994) that burned

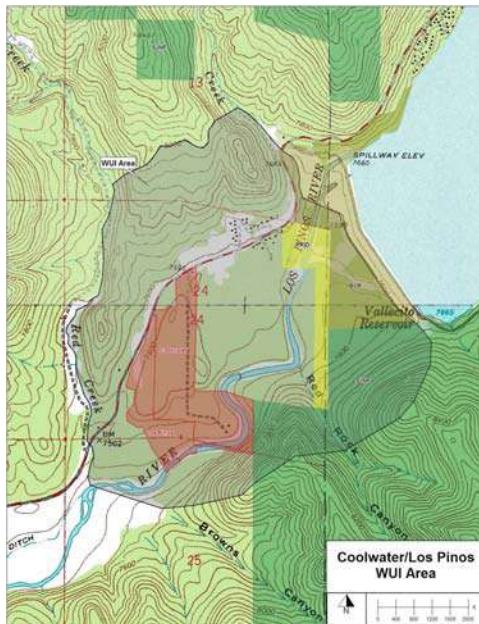
over 10,000 acres in piñon/juniper approximately 30 miles southwest of the subdivision; the Sambrito 2 Fire (2011) that burned 500 acres of ponderosa pine and piñon/juniper 25 miles southeast of the subdivision; and the Red Creek Fire that burned approximately 45 acres of mixed conifer forest eight miles southwest in 2010. Small lightning-caused fires occur every year on the National Forest to the east and west of Coolwater/Los Pinos every year, but are generally confined to a tenth of an acre or less. Fire scars are apparent on some trees across the subdivisions, so low intensity fires have occurred in the past.

D. Recent Wildfire Preparedness Activities

1. Included FireWise educational presentations and information at community meetings.
2. A 27-acre demonstration fuels reduction project thinning ponderosa pine and reducing ladder fuels in conjunction with the UPRFPD and FireWise Council of Southwest Colorado. 19 landowners are participating in the project.
3. Two residents are FireWise Ambassadors for the subdivisions.

3. PLAN AREA

A. Boundaries



The CWPP covering the WUI area was developed collaboratively with the Coolwater and Los Pinos subdivision residents, the Colorado State Forest Service, Upper Pine River Fire Protection District, FireWise of Southwest Colorado, the San Juan National Forest and the Bureau of Land Management. The WUI area is based on the area centered on the subdivisions likely to burn in high fire danger conditions during a single burning period if pushed by 20 mph winds.

The WUI boundaries are from the southeast toe of the Vallecito Reservoir dam south-southwest to the divide between the reservoir and Red Rock Canyon, then southwest across Red Rock Canyon and the top of the hill face to Browns Canyon, then west-northwest to the confluence of Browns Canyon, Red Creek and the Los Pinos River, then north

along Red Creek 1.33 miles. The boundary continues northeast to the 8,000 foot elevation, continuing along the contour to the face above Jack Creek and then down to Jack Creek, then southeast along Jack Creek to its confluence with the spillway below the dam, then southeast along the toe of the dam to the beginning point.

Total WUI area is 1,056 acres and is shown on the **Coolwater / Los Pinos WUI** map above and in Appendix A. Private land in the WUI covers 779 acres. The San Juan National Forest covers 163 acres, USDI Bureau of Reclamation lands cover 69 acres and Pine River Irrigation District property makes up the remaining 45 acres.

B. Private Land Characteristics

The 779 acres of private land within the WUI boundary includes the 139-acre Coolwater / Los Pinos subdivisions, the 16-acre Vallecito Resort with 160 RV sites and cabins plus 46 parcels outside the subdivisions. Parcel sizes range from approximately 0.1 acre to over 300 acres. There are 23 residences, and over 40 sheds, barns and other outbuildings. Land uses are generally residential, agricultural (pasture and hay production), tree farming, and non-industrial small business.

The vegetation type is ponderosa pine forestland with occasional small (< ¼ acre) openings inside Coolwater and Los Pinos. Other private tracts in the WUI have larger grass meadows and aspen stands. The forest stands are dominated by ponderosa pine (*Pinus ponderosae*), with small components of white fir (*Abies concolor*), blue spruce (*Picea pungens*) and aspen (*Populus tremuloides*). Understory shrubs include Gambel oak (*Quercus gambelii*), chokecherry (*Padus virginiana*), serviceberry (*Amelanchier spp.*), common juniper (*Juniperus communis*), and Oregon grape (*Mahonia repens*). Grasses include both native grasses and introduced species like bluegrass (*Poa spp.*). Native grass species include sedges (*Caryx spp.*), little bluestem (*Schizachyrium scoparium*), Arizona fescue (*Festuca arizonica*) and slender wheatgrass (*Agropyron trachycuum*). Grasses are present across the understory and dominate the occasional small openings

The Fuel Model associated with the ponderosa pine cover type is discussed in Section 6: Resource Assessments and Trends.

C. Public Land Characteristics

Public lands in the WUI include the headquarters complex of the Pine River Irrigation District. The vegetation has been influenced by the 2002 Missionary

Ridge Fire. Prior to the fire the public lands had essentially the same ponderosa pine-dominated cover type as the subdivisions. The fire changed the cover types in areas that experienced stand-replacement fire to Gambel oak shrubland, grassland or aspen saplings. Areas that had no fire or low to moderate-intensity underburns have remained ponderosa pine forestland. Fuel models are the same as those in the same cover types on private lands.

D. Fire Protection

Structural and wildland fire protection is provided by the Upper Pine River Fire Protection District. Both structural and wildland fire engines are resources available through the Fire Protection District. Other wildland fire resources are available through Durango Interagency Dispatch Center. Wildland fire resources include engines and crews from the US Forest Service, Bureau of Land Management, Mesa Verde National Park, Colorado State Forest Service, Bureau of Indian Affairs and the Southern Ute and Ute Mountain Ute Tribes. An air tanker base is located at Durango - La Plata Regional Airport and additional aerial wildfire support can be provided by the Mesa Verde National Park initial attack helicopter at Hesperus, the Ute Mountain Ute initial attack helicopter at Towaoc and the Colorado State Forest Service Single Engine Air Tanker at Cortez. The Counties, Federal land management agencies, Colorado State Forest Service and Fire Protection Districts in Southwest Colorado operate under a Consolidated County Annual Operating Plan (AOP) for wildfire protection.

4. PLANNING PARTNERS AND PROCESS

A. Partners

The subdivisions have received process and planning assistance and input from the following individuals and organizations:

- Bruce Evans, Chief, Upper Pine River Fire Protection District
- Rich Graeber, former Chief, Upper Pine River Fire Protection District
- Kent Grant, Durango District Forester, Colorado State Forest Service
- Craig Goodell, San Juan Public Lands Mitigation and Education Specialist
- Julianne Hartman, Coolwater resident and FireWise Ambassador
- Susan Jones, Los Pinos landowner, Coolwater resident and Firewise Ambassador
- Pam Wilson, FireWise Council of Southwest Colorado
- Butch Knowlton, La Plata County Emergency Manager
- Bruce Short, Short Forestry LLC, forest and fire management consultant

B. Process

A Core Team was assembled including representatives from the Colorado State Forest Service, San Juan Public Lands Center, Upper Pine River Fire Protection District, La Plata County Office of Emergency Management, the FireWise Council of Southwest Colorado and the FireWise Ambassadors for Coolwater/Los Pinos. The Team met in September 2011 with the FireWise Ambassador and developed an initial list of issues and concerns that the CWPP should address. A field trip to the subdivision by the Core Team occurred in January 2012. A meeting to discuss the CWPP process and potential treatment recommendations was held with residents in June 2012 and a draft CWPP was presented to the residents in August 2012

Two of the Team members are the FireWise Ambassadors for the subdivision. They attend the FireWise Council of Southwest Colorado meetings and bring back FireWise information to the residents at community meetings.

C. Desired Future Condition

The Desired Future Condition (DFC) for Coolwater / Los Pinos has been developed through the collaborative CWPP process. The DFC is:

Coolwater and Los Pino subdivisions are desirable, rural forested communities safer from catastrophic wildfire moving into or through the communities. Homes are less vulnerable to wildfire by the use of fire-resistant construction methods and FireWise landscaping. Fuels within 100 feet of residences are maintained at levels which would support only low intensity surface fires, while fuels in the remainder of the landscape in the subdivisions would support low to moderate intensity wildfire.

5. POLICIES

A. Federal

The Coolwater and Los Pinos CWPP has been developed in response to the Healthy Forests Restoration Act of 2003 (HFRA). This legislation established unprecedented incentives for communities to develop comprehensive wildfire protection plans in a collaborative, inclusive process. Furthermore, this legislation directs the Departments of Interior and Agriculture to address local community priorities in fuel reduction treatments, on both federal and non-federal lands.

The HFRA emphasizes the need for federal agencies to collaborate with communities in developing hazardous fuel reduction projects and places priority on treatment areas identified by communities themselves through development of a Community Wildfire Protection Plan (CWPP). Priority areas include the wildland-urban interface (WUI), municipal watersheds, areas impacted by windthrow or insect or disease epidemics, and critical wildlife habitat that would be negatively impacted by a catastrophic wildfire. In compliance with Title 1 of the HFRA, the CWPP requires agreement among local government, local fire departments, and the state agency responsible for forest management i.e., the Colorado State Forest Service. The CWPP must also be developed in consultation with interested parties and the applicable federal agencies managing public lands surrounding the at-risk communities.

B. State

The State of Colorado is concerned about the size and intensity of wildfires occurring across the state in recent years. The State Legislature enacted House Bill 1110 in 2008, creating a five-year program running from 2009 to 2014 that allows landowners to deduct a portion of the actual costs of their wildfire mitigation from their state income tax. The program allows each landowner to get credit for fifty percent of the cost of wildfire mitigation up to a total of \$2,500. To get the full credit the total mitigation costs must be \$5,000 or greater. The work must be done in accord with an existing Community Wildfire Protection Plan to qualify.

The Colorado State Forest Service conducted a Statewide Forest Resource Assessment and released a Statewide Forest Resource Strategy in 2010. One of the themes for the Assessment and Strategy is “Protect Forests from Harm.” The identified threats relevant to Coolwater / Los Pinos are:

- Wildfire in the Wildland-Urban Interface.
- Insects and Diseases Affecting Community Forests

The area around the subdivision has been identified as having High Wildfire Susceptibility based on weather, historic fire occurrence, topography, surface fuels and canopy closure.

The applicable strategies identified to address the threats are:

- Focus forest management activities to reduce impacts of wildfire, and forest insects and diseases.
- Coordinate forest management implementation among all parties affected by the CWPP.
- Advocate landscape approaches to protect communities.
- Collaborate with land management agencies, fire protection districts and insurance organizations to develop improved standards that lead to protection of homes in the WUI.
- Expand the use of the Good Neighbor Authority in Colorado.

C. Consolidated County Annual Operating Plan

The Counties, Federal land management agencies, Colorado State Forest Service and Fire Protection Districts in Southwest Colorado operate under a Consolidated County Annual Operating Plan (AOP) for wildfire protection. This plan provides for mutual aid to assist with the management of wildfire incidents in southwest Colorado. The plan for mutual aid provides significantly enhanced initial and extended attack capabilities through the rapid convening of fire protection resources for managing a wildfire. The Consolidated County AOP outlines standard operating procedures and the level of participation and available resources of each party under the plan.

D. USFS and BLM Land and Resource Management Plan / Fire Management Plan

The San Juan National Forest and Tres Rios Bureau of Land Management Field Office Land and Resource Management Plans and associated Fire Management Plans describe the role of fire in the native ecosystems in southwest Colorado. These plans outline the strategies that the USFS and BLM will utilize to manage wildland fire and fuels on these federal lands in southwest Colorado. The San Juan National Forest and San Juan Resource Area Fire Management Plan (2007) specifically describes objectives and strategies to manage fire and fuels on federal lands near communities within the wildland-urban interface.

E. Bureau of Reclamation / Pine River Irrigation District

These agencies do not have specific fire management plans for their lands surrounding Vallecito Reservoir and within the WUI. Both act to suppress wildfires starting on their ownerships to minimize damage to infrastructure and to restrict fire spread.

F. La Plata County CWPP

The Coolwater and Los Pinos CWPP tiers to the La Plata County CWPP approved in July 2006. This plan is consistent with the goals and strategies described within the La Plata County CWPP and provides further strategic and tactical direction specific to wildfire protection and mitigation for the Timberdale community.

G. Coolwater and Los Pinos

Neither subdivision has active covenants. Therefore, there are no restrictions on vegetation management in effect.

6. RESOURCE ASSESSMENT AND TRENDS

A. Fuels and Fire Hazard

1. Cover Types

The ponderosa pine cover type is approximately 80 to 100 years old, reflecting the timber harvests occurring in the area of the upper Los Pinos River valley in the late 1800's and during construction of the Vallecito dam from 1937 through 1941. Stand densities range from 60 to 200+ square feet of basal area per acre and average approximately 120 square feet per acre. That density is more than is desirable for good forest health. Infestation risk from mountain pine beetle (*Dendroctonus ponderosae*) increases above stand densities of 80 square feet per acre as does the risk of running crown fire. White fir, blue spruce and small ponderosa pines are present under the larger trees in some areas, serving as ladder fuel to the low tree canopies.



Ponderosa Pine Cover Type

Shrubs are primarily Gambel oak, chokecherry and common juniper under the ponderosa pine. Willows (*Salix spp.*) occur along the Los Pinos River. Grasses occur across the area as an understory component.

2. Fuel Models

The La Plata County CWPP (2006) shows the area of Coolwater and Los Pinos as a “higher” level of concern on the La Plata County Fire Risk Zone Map due to the

cover types and fuel loads typically present. The only fuel model within the subdivisions is Closed Canopy Long-needled Conifer.

The WUI area has two other significant fuel models – Montane Shrub and Short Grass. These models are also discussed below.

Closed Canopy Long-Needled Conifer (NFFL 9/Standard Fire Behavior TU5): This model is for the closed canopy ponderosa pine cover type with moderate downed woody fuels and shrub components. Flame lengths and spread rates are moderate. Interlocking tree crowns and the presence of concentrations of fuels coupled with low fuel moisture, low humidities, high temperatures and moderate to high winds can increase spread rates and intensities and move fire into the tree crowns.



Model 9 / TU5

Montane Shrub (NFFL 6/Standard Fire Behavior SH2): This model includes Gambel oak and other shrub cover types. Fires carry through the shrub layer as well as the cured litter and dead woody material on the ground surface with moderate (greater than 8 miles/hour eye-level) winds. Lighter winds and openings in the canopy will drop the fire to the surface. Intensity and duration can be moderate to high. A complicating



Models 6 / SH2 (Missionary Ridge Fire)

factor for this fuel model is the level of standing and down dead wood present due to past frost-kill in the oak and dead downed trees from the Missionary Ridge Fire. Down woody fuel loads in excess of 10 tons per acre are common. Normal live and dead fuel loads in Fuel Model 6 are 6 tons per acre.

Short Grass (NFFL 1/ Standard Fire Behavior GR1): This model includes both native grass and agricultural pasture cover types. Fire spread is governed by the fine and continuous herbaceous material that is cured or nearly so. Fire will not readily spread when relative humidity is over 25%. Fires are surface fires that move rapidly through the cured grass and associated litter. Fires can be intense if fuels are very dry but fire duration is usually short.



Models 1 / GRI (foreground)

3. Slash Treatment

Effective reduction of slash created by fuels mitigation is an important aspect of a fuels mitigation program. Piling and burning of slash is an effective treatment but usually requires snow cover or very moist conditions. Broadcast burning is also effective and more ecologically desirable since it can increase soil nutrients and provide good establishment conditions for desirable vegetation. However, broadcast burning requires a high level of technical expertise to accomplish and the smoke generated can negatively affect people with respiratory issues.

Chipping slash is an alternative to piling and burning but it can generate large chip piles that stay for years or chip depths across the landscape which can be a fire hazard in themselves in dry years.

4. Structural Vulnerability

Residential structure ignitability is moderate with a few structures having high ignitability. Wood is the predominant siding material for the residences. There are sheds and outbuildings, fences, porches and decks of wood construction. Roofing is most often metal “propanel” type material with less use of asphalt shingles. Two or three structures have wood shingles. Major vulnerability issues are flammable vegetation and pine needle litter in close proximity to the structures. Many of the seasonal homes have several inches of pine needles on the roofs, patios and decks.

Access is generally good along Deer Trail, Wapiti Drive, the northwestern part of Easy Street and Shady Lane. The southern part of Easy Street, Vallecito Place, Los Pinos Place, Beuten Drive and lower Red Bluff Drive are narrow, winding

and have limited turn-arounds. Signage visibility is poor at some intersections. Many driveways to residences are narrow and have limited turn-around areas for structure fire engines.



Typical Coolwater Setting

Zone 1 (zero to 15 feet from structures) around the residences is good to poor. The seasonal residences often have deep build-ups of pine needles on roofs, decks and porches and on the ground surrounding the residences. Grasses are often un-mowed and shrubs are right next to structures. Most homes have trees within five feet of them. The density of the trees has limited ladder fuel development but the subdivisions generally have

interlocking tree canopies. Zone 2 (15 to 75 feet from structures) is variable, with some homes having irrigated lawns and moderate spacing between trees and shrubs. Others have extensive areas of trees with interlocking crowns up to the home and a lot of pine straw on the ground. With some exceptions Zone 3 (75 feet or more from structures) has received little management since the inception of the subdivisions.

B. Values At Risk

1. Socio/Economic

The forested setting of the subdivision is valued by its residents. House pets are common. Coolwater and Los Pinos are close to Durango and Vallecito Reservoir so the location is prized by its residents.

2. Ecological

The setting of Coolwater / Los Pinos is wooded, so loss of the trees from wildfire would have a significant impact to the ambiance of the community, even if no structures were lost. No threatened or endangered species are known to inhabit the subdivision itself, but rare plants may occur within the WUI area.

Southwest Colorado is noted for its good air quality. Wildfire would negatively affect the air quality of the area during a fire.

Wildfire can adversely affect soil quality, reducing water permeability, increasing bulk density and removing organic matter. The soils in the subdivisions are

sedimentary with moderate erodibility and moderate fertility. Loss of tree cover due to a severe wildfire would increase susceptibility to erosion.

The subdivisions are located in the Los Pinos River watershed upstream of the municipal water intake for the town of Bayfield. Water originating from the watershed flows into Navajo Lake and the San Juan River, and then into the Colorado River. Introduction of soot and sediment due to a wildfire within the watershed could compromise water quality for the town of Bayfield and for Navajo Lake and the Colorado River.

Ecosystem health for the WUI is fair. Density of the ponderosa pine component and suppression of small fires over the past 100 years has increased the downed woody fuels across the WUI area as well as needle and leaf litter depths in areas that did not burn in the Missionary Ridge Fire. Fuels management has occurred on several lots in the subdivision over the past five years but many have not had any treatments.

C. Protection Capability

The subdivision is served by the Upper Pine River Fire Protection District. The District is staffed by both full-time staff and volunteer firefighters. There is a seasonal wildfire crew which has National Wildfire Coordinating Group (NWCG) wildland firefighting qualifications. The main fire station is located on the west side of the town of Bayfield along County Road 501. There are several substations across the Fire Protection District, including one on CR 501 approximately 0.5 miles north of the Deer Trail entrance. U.S. Forest Service and Bureau of Land Management fire crews and aerial wildfire support by the Mesa Verde National Park initial attack helicopter at Hesperus and the Ute Mountain Ute initial attack helicopter at Towaoc are available under the mutual aid agreement.

Wildland fires occurring on private lands are generally managed for full suppression. Wildfires on National Forest and BLM-managed public lands and Tribal lands in La Plata County are managed with policies that may involve full suppression, point suppression, confinement or containment strategies.

There are several water systems serving the two subdivisions. One community system serves part of the northern portion of Coolwater. This system is problematic according to residents and operates only during the summer months. Another system serves the southern part of Deer Trail Lane and Wapiti Drive in Coolwater. The Los Pinos Water Association serves five homes. Water for other homes is supplied from individual wells. There is no hydrant system for either structural or wildland fires. Water can be drafted directly from the Los Pinos River at the bridge on Red Bluff Drive.

Evacuation of Coolwater / Los Pinos in an emergency is facilitated by three possible egress routes. Deer Trail, Easy Street and Los Pinos Drive all empty onto CR 501. Evacuation actions are the responsibility of the La Plata County Sheriff's Office and the La Plata County Emergency Manager.

7. MITIGATION ACTION PLAN

A. Education and Community Outreach

The audience for the Mitigation Action Plan includes the residents of Coolwater and Los Pinos, landowners immediately surrounding the subdivision that can benefit from mitigation activities on their properties and in the subdivision; government agencies planning complementary mitigation treatments and/or supplying grants or matching funds to perform mitigation; and emergency responders.

Outreach methods may include:

- Educational information at scheduled community meetings.
- Educational community workshops which could include subdivision residents and other community members sponsored by the FireWise Council of Southwest Colorado and/or the Upper Pine River Fire Protection District.
- FireWise Committee information mailed to all residents.
- Ensure landowners are aware of the Colorado state income tax incentive for wildfire hazard mitigation (House Bill 1110).
- Periodic sponsored fuels treatment events with the residents sharing expertise and equipment.

B. Policy

Authority and responsibility for managing vegetation on private property within Coolwater / Los Pinos rests with the residents.

C. Wildfire Mitigation Activities

1. Vegetation/Fuels Management

The tree cover across the subdivision is ponderosa pine with shrub and small tree understories. Tree stocking is generally over-dense so recommended treatments are aimed at reducing density and removing ladder fuels to reduce the opportunity for crown fires in close proximity to the residences. The recommendations are consistent with *Creating Wildfire-Defensible Zones* (Dennis 1999a).

Flammable trees or shrubs are discouraged within 15 feet of residences (Zone 1). If desirable trees or shrubs are in this area, dead branches, stems, pine needles and leaf litter should be removed and the zone extended accordingly. Tree branches should be pruned up at least 10 feet above ground. Xeriscaping landscaping techniques using plants and materials with low flammability can reduce the risk of flames adjacent to structures. It is recommended that landscaping within 3-5 feet of structures consist of gravel, rock or other non-flammable materials. Wood chips should not be used as mulch under flammable shrubs within Zone 1.

The Zone 2 area is found within 15 to 100 feet of the residence. Here, trees taller than 15 feet should be thinned to a spacing of 10-20 feet between crowns. Trees selected for retention should generally have at least 50% live crowns. Branches lower than 10 feet from the ground surface should be pruned. Trees shorter than 15 feet tall should be spaced no closer than five feet from the edge of adjacent tree crown edges. Oak clumps should be spaced no closer than two times shrub height to other clumps or trees. Grasses should be mowed to a maximum of six to eight inches, especially by fall when grasses are dried out.



Example Zone 2 Target Density

The Zone 3 area extends from the outer edge of Zone 2 to the individual property boundary. This area should be managed to minimize tree mortality from insects and diseases and reduce the possibility of large-scale, stand-replacement wildfires. Wind-driven crown fires are the primary type of stand-replacement wildfire in ponderosa pine forests, so thinning over-dense clumps to stand densities of 70 to 90 square feet of basal area or no more than 75 trees over 15 feet tall per acre and reducing downed woody fuels



Zone 3 Treatment (Durango West 2)

can reduce wildfire risk. Slash from thinning and fuels reduction activities should be chipped or piled for burning when snow is present or soils and vegetation are damp. All juniper trees within 10 feet of ponderosa pine tree crowns in the ponderosa pine type should be removed in the thinning.

Safety of residents and emergency responders can be enhanced by developing shaded fuelbreaks along all roads passing through the subdivisions. Again, the prescription would be thinning trees to a density of 60 square feet of basal area per acre or approximately 50 trees per acre. Clumps of oak can be left but should be spaced no closer than 2 times the shrub height. The fuelbreaks should be as wide as the road easement up to 50 feet from each side of the road running surface. Total area for this treatment would be 16 acres, including the road surface.

Probability of wildfire moving into or out of Coolwater / Los Pinos can be reduced through implementation and maintenance of a 50 foot-wide shaded fuelbreak in the forests and woodlands along the subdivision boundary. The treatment prescription would be the same as Zone 2, i.e., crown spacing of 15 to 25 feet between trees, tree clumps or shrub clumps plus pruning of tree branches up 10 feet. Treatment area would cover 12 acres inside the subdivision. Adjoining 100 foot wide shaded fuelbreaks along the boundaries with Pine Song Ranch and Coolwater Ranch are also recommended, totaling 16 acres. Pine Song Ranch is already planning to develop such a fuelbreak along the eastern boundaries of Coolwater. The fuelbreaks are shown on the **Coolwater and Los Pinos Treatments** map in Appendix A.

2. Structural Vulnerability

Recent research by Jack Cohen (Missoula Fire Science Laboratory) has shown that most homes catch fire from flying embers, not from the flaming fire front. When building and/or remodeling, residents are strongly encouraged to consider using fire-resistant materials and follow construction guidelines.

Structure construction using unpainted rough wood products including wood shake roof shingles is discouraged since those materials are very receptive to sparks and flame. Roof materials such as metal, cement or cement-fiber shingles and tile are not receptive to sparks, flame and heat. Enclosing soffits with 1/8" metal screening also discourages ignition of roofs and eaves. Detailed fire-resistant construction guidelines are found in *Firewise Construction, Design and Materials* (Slack 1999) in Appendix F.

Locate woodpiles and propane tanks at least 30 feet from structures. Clear flammable vegetation at least 10 feet away from woodpiles and tanks.

Enclose the underside of low wood decks and porches so that embers and flames cannot get underneath them. Decks that are impractical to enclose should not have flammable material stored under them. Keep grass, weeds, leaves and twigs

cleaned out from under them. Remove leaves and pine needles from decks, porches, gutters and roofs annually.

Structural protection can be enhanced by providing “dry hydrants” for drafting by engines. This would greatly reduce turn-around times for engines and allow for multi-structure protection. Cisterns or “dry hydrants” could be installed by the bridge crossing the river on Red Bluff Drive and at the end of Los Pinos Drive as close to the river as possible. Upper Pine River Fire Protection District could provide installation assistance.

3. Safety

The homeowners should work with the La Plata County Emergency Manager to develop an Emergency Evacuation Plan for the subdivision. The plan should include wildland fire safety zone locations, standard evacuee assembly points, communication trees and management action points.

Subdivision residents should be offered a general emergency situation safety awareness session annually to update emergency communication trees, evacuation routes and gathering points.

4. Specific Activity Recommendations and Priorities

The following mitigation activity and treatment recommendations are listed by priority for the Coolwater and Los Pinos residents and lot owners, Upper Pine River Fire Protection District and adjoining landowners and cooperators.

Group	Priority	Activity/Action	Estimated Cost	Activity Period
Homeowners	3	Develop a subdivision emergency notification and evacuation plan in consultation with Upper Pine River FPD, La Plata County Emergency Manager and the subdivision residents. The plan would include livestock care protocols, “Safety Zones” where residents could safely shelter-in-place and fire equipment staging areas.	\$5000	2013
Homeowners	1	Develop shaded fuelbreaks along subdivision roads (approx.16 acres)	\$15,000	2012 - 2017
Homeowners	4	Develop shaded fuelbreaks along the wooded portions of the subdivision boundary (12 acres)	\$24,000	2013 - 2017
Homeowners	2	Thin Zone 2 and Zone 3 areas on their properties for fuels reduction and forest health (27 acres)	\$1500 / acre	2013 - 2017
UPRFPD/Homeowners	7	Sponsor annual fuels “clean-up” days for the residents	\$2000 annually	2012-2017
UPRFPD/Homeowners	6	Assist homeowners with individual defensible space creation and fuel mitigation by providing annual information and education programs on effective mitigation techniques.	\$500 annually	2012-2017

Homeowners	10	Thin and prune trees and large shrubs around residences consistent with the recommendations of CSU Publication 6.302 Creating Defensible Space by F.C. Dennis	\$1500 / acre	2012-2017
Homeowners	8	Install reflective road signs with consistent design at all intersections to assist emergency response personnel and egress in an emergency	\$500	2013-2017
Homeowners	11	Use of "FireWise" plant materials in landscaping per CSU Publication 6.305 FireWise Plant Materials by F. C. Dennis	Variable	2012-2017
Other Ownerships	9	Work with surrounding landowners to apply shaded fuelbreak treatments to adjoining properties (16 acres).	\$32,000	2012-2017
UPRFPD/Homeowners	5	Install two "dry hydrants" for fire-fighting assistance	\$15,000	2012-2017

8. MONITORING AND EVALUATION

Monitoring and evaluation of outreach, education and mitigation efforts within Coolwater / Los Pinos and its WUI are an important part of the CWPP. The monitoring and evaluation actions for the CWPP are shown below along with the responsible group and when those actions should occur.

Monitoring		
Group	Action	Period
FireWise Ambassadors	Annual Report to the Community, FireWise Council of SW Colorado , Colorado State Forest Service	Annually
CSFS	Monitoring of mitigation work status for work covered by grants	As required

Evaluation		
Group	Action	Period
FireWise Ambassadors	Annual Report will list “Lessons Learned” from fuels mitigation projects and activities over the preceding year.	Annually
UPRFPD	Review CWPP and measure progress by degree of accomplishment of mitigation benchmarks	Annually
Homeowners	Update CWPP	No more than 5 years

9. GLOSSARY

acre: an area of land containing 43,560 square feet. A square acre would be about 209 feet by 209 feet. A circular acre would have a radius of 117.75 feet.

basal area: the cross-sectional area of a single stem, including the bark, measured at breast height (4.5 feet above the ground) For example, the basal area of a tree 13.5 inches in diameter at breast height is about 1 square foot. Basal area = 0.005454 times diameter squared. (b) of an acre of forest: the sum of basal areas of the individual trees on the area. For example, a well stocked pine stand might contain 70 to 90 square feet of basal area per acre.

canopy: the foliage formed by the crowns of trees in a stand.

defensible space: an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure.

diameter at breast height (dbh): the diameter of a stem of a tree at 4 ½ feet above the ground.

downed fuels: the accumulated woody and vegetative material on the forest floor from leaf/needle fall, natural pruning and breakage that serves as fuel for wildfire.

ecosystem: A spatially explicit, relatively homogenous unit of the earth that includes all interacting organisms (plants, animals, microbes) and components of the abiotic environment within its boundaries. An ecosystem can be of any size: a log, pond, field, forest, or the earth's biosphere.

fuel loading: the oven-dry weight of fuel per unit area.

ladder fuels: combustible material that provides vertical continuity between vegetation strata and allow fire to climb into the crowns of trees or shrubs with relative ease.

litter: the surface layer of a forest floor that is not in an advanced stage of decomposition, usually consisting of freshly fallen leaves, needles, twigs, stems, bark, and fruits.

lop and scatter: a hand method of removing the up-ward branches from tips of felled trees to keep slash low to the ground, to increase rate of decomposition, lower fire hazard, or as a pre-treatment prior to burning.

sapling: a usually young tree larger than a seedling but smaller than a pole.

shaded fuelbreak: A strategically located strip or block of land (of varying width) depending on fuel and terrain, in which fuel density is reduced, thus improving fire control opportunities. The stand is thinned and remaining trees are pruned to remove

ladder fuels. Most brush, heavy ground fuels, snags and dead trees are removed and an open park-like appearance established.

silviculture: the art, science, and practice of establishing, tending, and reproducing forest stands of desired characteristics. It is based on knowledge of species characteristics and environmental requirements.

slash: the residue of treetops and branches left on the ground after logging or accumulating as a result of storms, fire, girdling or delimiting.

snag: a standing, generally unmerchantable dead tree from which the leaves and most of the branches have fallen.

stand: a contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

thinning: a cultural treatment made to reduce stand density of trees primarily to improve growth, enhance forest health, or recover potential mortality.

Wildland-Urban Interface: The geographical meeting point of two diverse systems - wildland and structures. In the WUI, structures and vegetation are sufficiently close so that a wildland fire could spread to structures or a structure fire could ignite vegetation.

Definitions except defensible space, shaded fuelbreak and Wildland-Urban Interface from *The Dictionary of Forestry*, John A. Helms, editor.

10. LITERATURE CITED

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APPENDICES

A. Maps

B. Creating Wildfire-Defensible Zones (CSU Extension Pub. 6.302, F. C. Dennis)

C. Fuelbreak Guidelines for Forested Subdivisions (F.C. Dennis)

D. Fire-Resistant Landscaping (CSU Extension Pub. 6.303, F. C. Dennis)

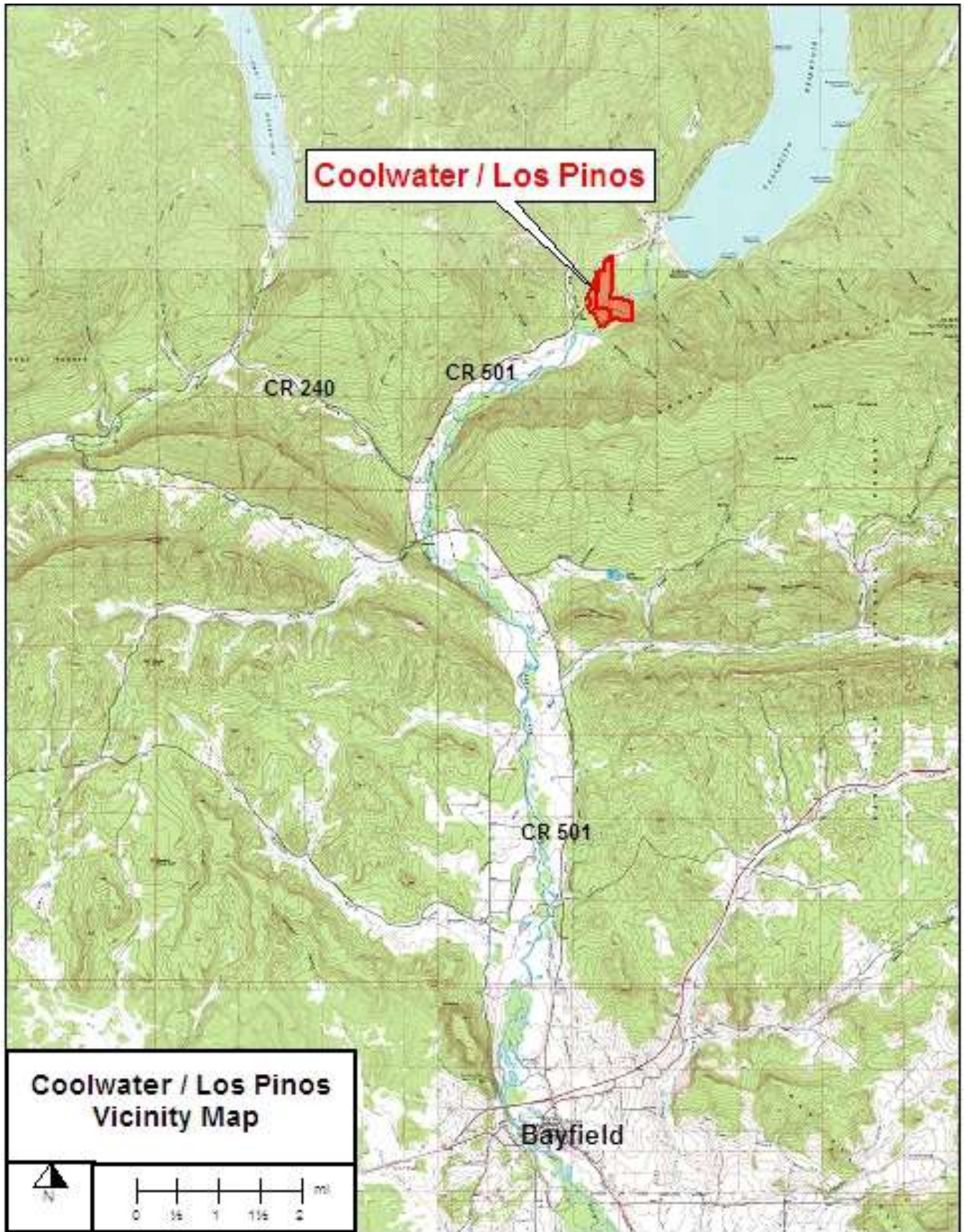
E. FireWise Plant Materials (CSU Extension Pub. 6.305, F. C. Dennis)

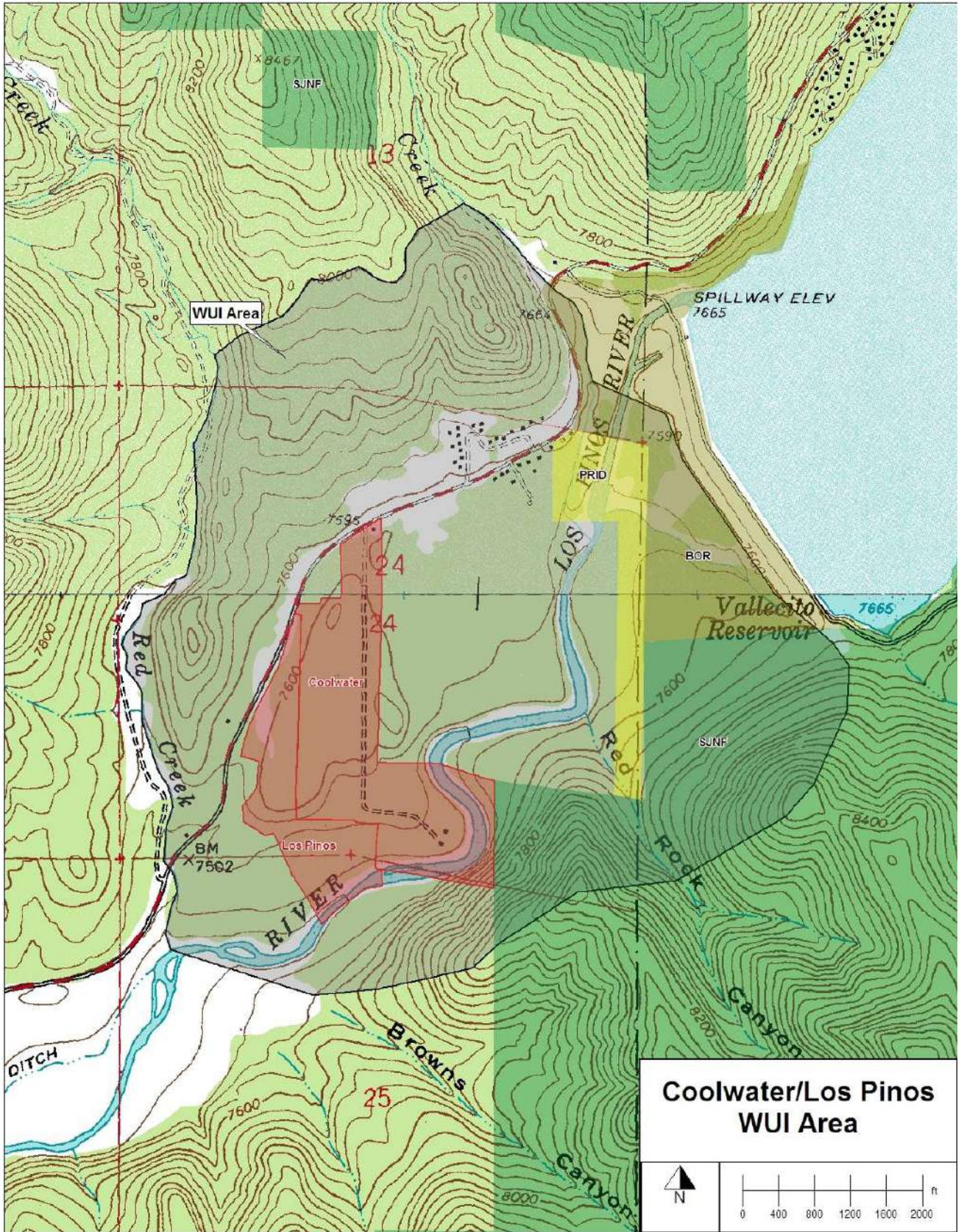
F. Firewise Construction, Design and Materials (P. Slack)

Appendix A

Maps

- 1. Coolwater and Los Pinos Vicinity**
- 2. Coolwater and Los Pinos WUI**
- 3. Coolwater and Los Pinos Treatment Areas**





**Coolwater/Los Pinos
WUI Area**

