

Gold Basin Subdivision's Community Wildfire Protection Plan



TABLE OF CONTENTS

I.	Definition of the Wildland Urban Interface.....	4
A.	Location	4
B.	Ingress/Egress	5
1.	Routes	5
2.	Directions.....	5
C.	Map of Location of Subdivision	6
D.	Wildland Urban Interface Map	7
E.	Gold Basin Subdivision Road Map	8
II.	Structure/Lot Wildfire Hazard Evaluation/Fire Behavior.....	9
A.	Structure/Lot Wildfire Hazard Evaluation.....	9
B.	Expected Fire Behavior.....	9
III.	Community Values to be Protected	12
IV.	Reducing Structure Ignitability.....	12
A.	House Site Location	12
B.	Roof	12
C.	Siding/Walls.....	13
D.	Foundation	13
E.	Windows	13
V.	Defensible Space.....	13
A.	Defensible Space Zones.....	13
B.	Steps to Determine Recommended Size of Defensible Space.....	14
C.	Other Areas of Consideration	16
VI.	Community Preparedness	17
A.	Before Wildfire Emergency	17
1.	Individual Homeowner Actions	17
2.	Subdivision/Homeowner Actions	18
3.	Fire Department Actions.....	19
4.	Sheriff's Department Actions.....	19
B.	During a Wildfire Emergency "Response Plan"	19
1.	Fire Protection Responsibility.....	20
2.	Alarm Response	20
3.	Access	20
4.	Water Supply	21
5.	Locations.....	21
a.	Command Post.....	21
b.	Staging Area.....	21
c.	Safety Zone(s).....	21
d.	Helispot(s).....	22
6.	Evacuation.....	22
a.	Procedure	22
b.	Escape Route during Emergency	22
7.	Radio Frequencies.....	22
8.	Adjacent Property	23
9.	General Goals/Objectives	23
10.	Anticipated Problems.....	24
VII.	Vegetation Management	25

A.	Tree Species Overview	25
B.	Prescription	27
C.	Fuel Breaks	30
D.	Fuel Break Map.....	36
E.	General Fuel Break Prescription According to Vegetative Type	37
F.	Escape Routes/Safety Zones	38
G.	Safety Zone Locations	41
H.	Safety Zone/Escape Route Map.....	43
I.	Cost/Grants	44
J.	BLM Fuel Treatments.....	44
K.	BLM Treatment Map.....	47
Appendices		
1.	Definitions.....	48
2.	Defensible Space Guidelines	50
3.	Topographic Map.....	52
4.	Logistics Map.....	53
5.	Values at Risk Map.....	54
6.	Water Sources Map.....	55
7.	Common Aspen Diseases	56
8.	Common Conifer Diseases	57
Signature Pages.....		58

I. Definition of Gold Basin Subdivision's Wildland Urban Interface

Wildland Urban Interface is an area where structures are built in close proximity of naturally flammable vegetation. Gold Basin subdivision is a classic representation of that specific situation. Gold Basin is located in the central Rocky Mountains. The forest within and outside of the subdivision are dense and overcrowded. The sage in the area is also dense and very wildfire receptive. This creates the situation where if a wildfire emergency was to occur, the likelihood of potential loss of property and life are high. A collaborative effort of forest management and organization between subdivision residents and adjoining neighbors is the only solution.

Gold Basin subdivision covers 2,010 acres at an average altitude of 8,000 feet. 50 lots are located within the subdivision, with the average mean size of the lots being 35 acres. The average slope of the subdivision is 15%, with a range of 5-45%. South is the predominate aspect of the subdivision.

The ecosystem surrounding the subdivision is very diverse. The higher elevations and north aspect slopes are covered in dense Douglas fir and aspen with a peppering of Lodge pole and Ponderosa Pine. The low elevation areas are covered by dense sage with a grass understory. The subdivision is a high country desert with very little water.

The Wildland Urban Interface map illustrates the boundaries of the interface. The WUI is represented by a blue line and covers an area of 11,268 acres. The WUI boundaries are based upon wildfire potential. The boundary encompasses the area that has the highest potential to spread a wildfire onto Gold Basin land. The subdivision boundary is represented by a blue line. The public lands within the WUI boundary are represented by a purple line. All public lands within the WUI are managed by the Bureau of Land Management. Cross boundary efforts are essential for wildfire prevention. Fire is capricious and will always find the defenses weakest link. Fire does not respect human boundaries but rather mitigated fuels and natural barriers (less flammable vegetation, rock outcrop etc.).

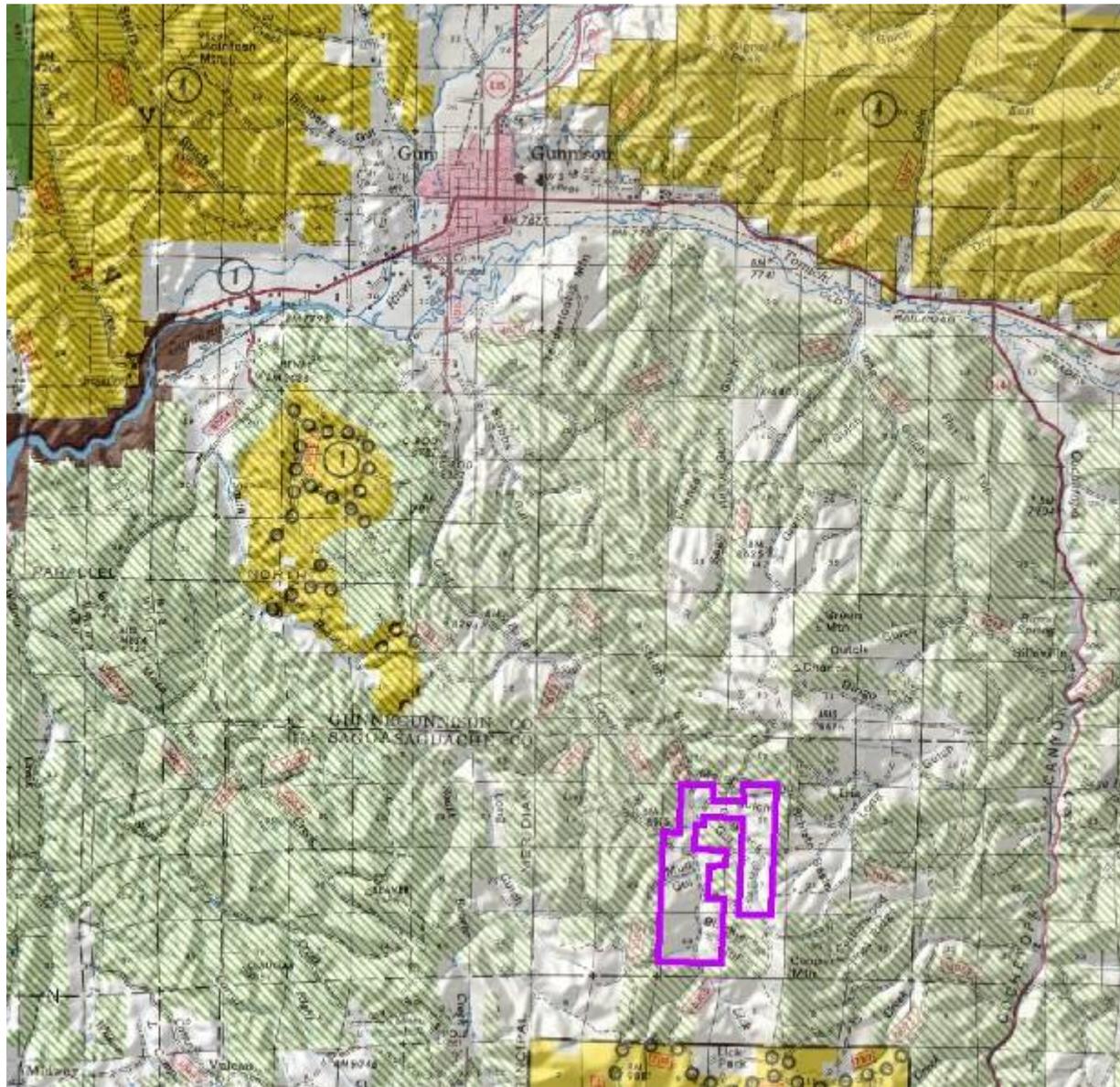
A. Location

1. County: Saguache, Colorado
2. Geographic Area: 13 miles South of Gunnison (south of airport)
3. Legal Description R1E, T48N, Sections 21,22,23,29,28,27,26,33 NMPM
4. USGS Map Quadrangles: Iris NW

B. Ingress/Egress

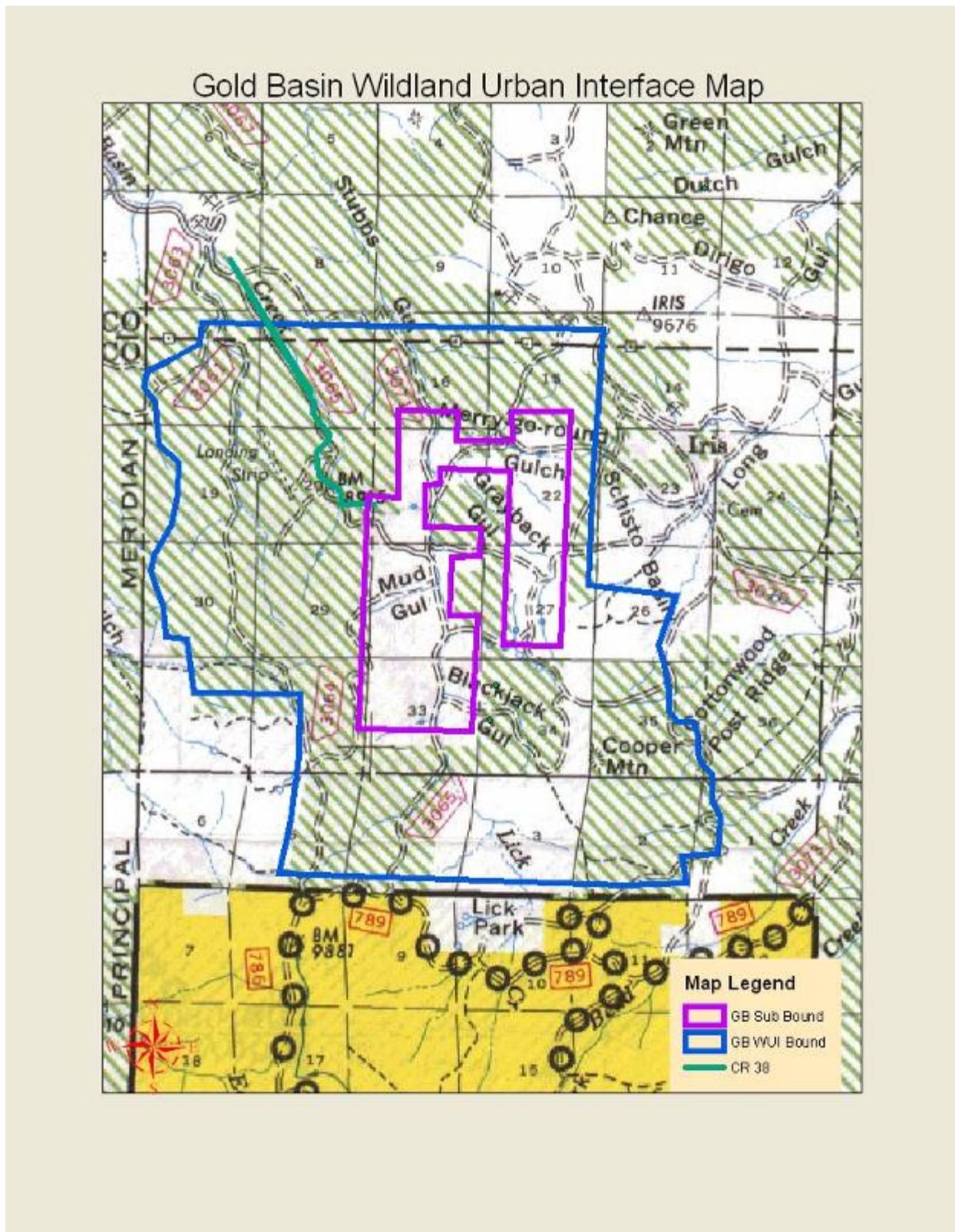
1. Routes: Hwy 50 to County Rd 38 North entry 13 miles south (past airport and BLM Hartman's rocks)
2. Directions: From Gunnison, go west just past airport and before twin bridges, make left onto County Rd 38 go south for 13 miles, through 3 cattle guards, subdivision starts at stop sign.

C. Map of Location of Subdivision

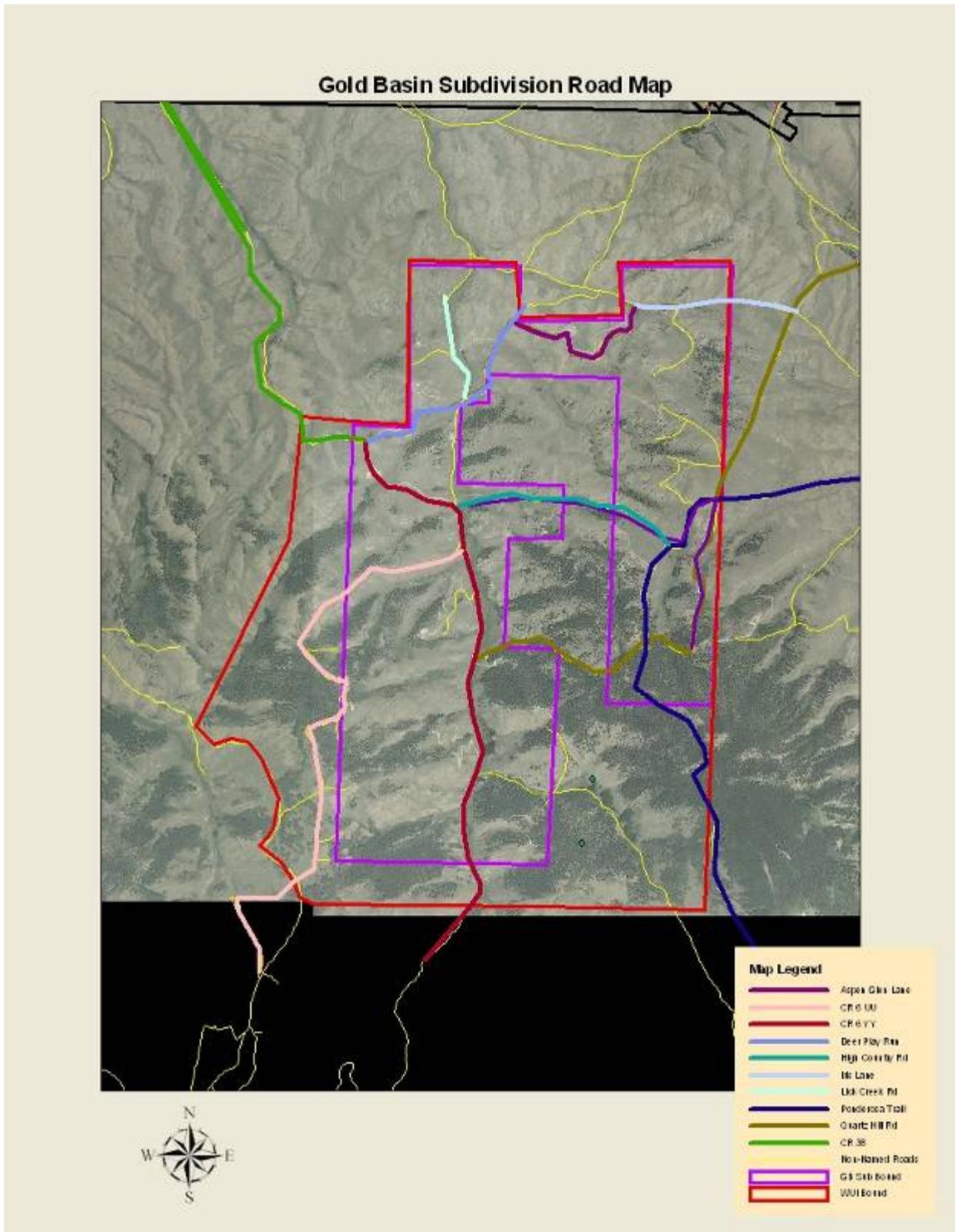


* Purple outline is the subdivision boundary

D. Gold Basin Subdivision Wild Land Urban Interface



E. Gold Basin Subdivision Road Map



DATA IS IN THE WORKS

II. Structure/Lot Wildfire Hazard Evaluation/ Fire Behavior

A. Structure/Lot Wildfire Hazard Evaluation

- 1. Subdivision - The subdivision has been rated utilizing the CSFS "Wildfire Hazard Rating Form".

The results are:

Points 67

Description High (*Moderate, High, Extreme*)

- 2. Structures - All structures have been rated utilizing the CSFS "Wildland Home Fire Risk Evaluation System". A description is found in Appendix 5.

Results are:

Number of Structures			
Extreme	High	Moderate	Low
17	5	10	1

B. Expected Fire Behavior (head fire only):

Aspen Stands

Fires are low to moderate in intensity except when they consume pockets of dry grass, sage -brush or conifer. Typically fires are of short duration. Rate of spread is moderate to high but fairly easy to stop.

Conifer Stands

Crowning out, spotting, and torching of individual trees are more frequent in this fuel situation, leading to potential fire control difficulties. Fire is of high intensity and can be of short or long duration, Rate of Spread is moderate to fast.

Douglas fir Timber

These fuels respond quickly to changes in weather. They will dry or absorb moisture rapidly. Increases in wind speed or slope will cause fire to increase in flame height and intensity. Fire behavior can range from low when burning conditions are marginal to extreme during hot, dry weather.

- 1. Specific - Determined utilizing BEHAVE (The Fire Behavior Prediction System) and NFFL fuel models.
 - a. Input data. 30 percent slope was used to show the fire behavior that could be expected on the more steep slopes in the Subdivision. The

Extreme rated lots at the south end of the subdivision (see Appendix 6) are located on steep slopes of 20 percent. Extreme rated lots on the West side of the subdivision are located above slopes exceeding 50 percent.

	Average Day	Red Flag Day
Date	7-31	7-31
Time (hrs)	1500	1500
Temperature (F)	65	75
Min. Relative Humidity (%)	18	10
Average Wind Speed (MPH)	6	15
Live Fuel Moisture (%)	150	100
1 Hr. Fuel Moisture (%)	5	2
10 Hr. Fuel Moisture (%)	8	5
100 Hr. Fuel Moisture (%)	14	10
Average slope (%)	30	30
Fuel Model	10	10

b. Outputs

1) Average Day

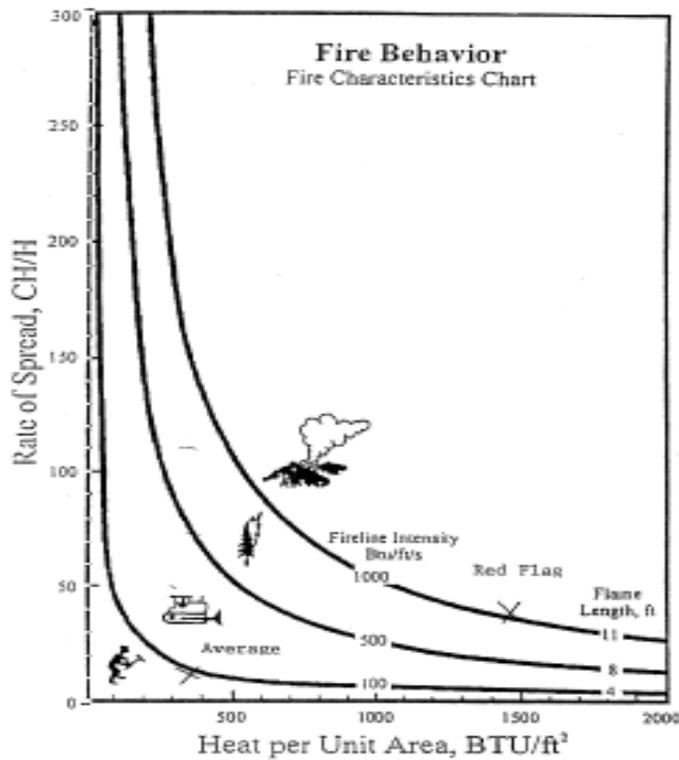
	AVERAGE DAY	
	<hr/>	
Rate of spread (chains/hr)	9.4	
Fireline intensity (Btu/ft/s)	100	
Average flame length (ft)	5.3	
	Response Time	
	<hr/>	<hr/>
	.3 HOUR	1 HOUR
Area (acres)	.6	6.5
Perimeter (ft)	660	2310
Estimated spotting distance (mi)	.2	

2) Red Flag Day

	RED FLAG DAY	
Rate of spread (chains/hr)	49	
Fireline intensity (Btu/ft/s)	746	
Average flame length (ft)	12.5	
	Response Time	
	.3 HOUR	1 HOUR
Area (acres)	10	117
Perimeter (ft)	3498	11748
Estimated spotting distance (mi)	.4	

2. Fire Characteristics Chart (Projected)

This chart shows the BTU per square foot at increasing rates of spread. Rates of spread are graphed in chains per hour. One chain equals 66 feet. The Average Day and Red Flag Day Fire Behavior are plotted on the chart.



III. Community Values to be Protected (Map - appendix 5, pg 51)

This section addresses the essential community values that can be destroyed due to a wildfire. The highest priority for protection is human life. The community preparedness section (CPS) on pg 17 has a wealth of information to help residents become safer both before and during a wildfire emergency. Part 2 of the CPS on pg 20 has a response plan. The response plan, under section E on pg 21, designates locations of command post, staging areas, safety zones and helispots. These locations are also mapped on the logistics map in appendix 4 on pg 50. Under section F # 1 of the CPS response plan on pg 22 is the evacuation procedure. Section 2 on pg 22 has the specific evacuation travel routes. Please refer to the road maps on pgs 7-8.

The highest value is the residential structures. The first step in protecting structures is to refer to the Defensible Space section of the CWPP on pg 13. This topic is further illustrated in appendix 2 on pgs 50-51. Subtitle a. of section A of part 1 under the CPS (pg 17) covers actions homeowners should take prior to a wildfire emergency. These steps will help ensure the protection of structures.

The second community value to be protected is the snow fence located north of the subdivision along CR38. It starts at the Saguache county line and goes until the stop sign at the confluence of CR # 38 and CR YY. The fence is located on BLM property. This fence was a combined effort between the Gold Basin HOA and the county of Saguache. The fence is designed to keep snow from drifting on the county road. This provides for a safer road. Over \$20,000 has been invested in the fence. The fence can be protected from wildfire by mowing a strip of sage on each side of the fence that is 70 feet wide. In the event of a wildfire emergency the fence can be protected by a slurry drop or a foam line.

IV. Reducing Structural Ignitability

A wildfire is capricious and will always find the weakest link in your defense. The goal of this section is to help residents make decisions in building materials and home maintenance, making their structures more fire resistant.

A. House Site Location

The first step in structure protection, for someone building a new home, is choosing a building site. When determining where a structure will be built, the developer and owner should consider how the native vegetation and topography variations affect wildfire behavior.

B. Roof

The second building standard that should be considered is the roofing material. One of a structures most vulnerable area is the roof, which is due to the amount of surface area. The roof can be continually inundated with flying firebrands.

C. Siding/Walls

The third consideration to look at while building or remodeling is the siding and walls. Use construction materials that are fire resistant or non-combustible whenever possible. Use a minimum of a class 3 flame spreading siding material. The best materials are brick or stucco type products. The walls should be constructed of fire resistive materials from the ground to the roof overhang.

D. Foundation

The fourth consideration is the foundation. The area is often the first area to come in contact with a spreading wildfire. Construct a closed foundation with concrete block, cement wall, or use other fire resistive materials.

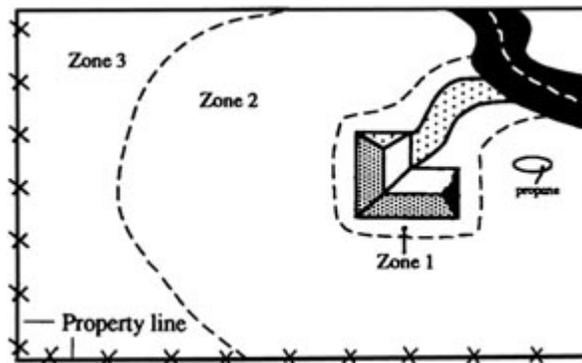
E. Windows

The fifth consideration is the window area and is often overlooked as a hazard. Radiant heat can pass through them and set fire to curtains or furniture. Minimize the size and number of windows on the side of the house that is likely to be exposed to wildfire. Consider size and materials for windows, choose double pane glass for reducing the amount of radiant heat; plastic skylights can melt rapidly.

V. Defensible Space

Two factors have emerged as the primary determinates of a structure's ability to survive wildfire. These are the structure's roofing material and the quality of the defensible space surrounding it. Defensible space is an area around a structure where fuels have been mitigated to slow the spread of a wildfire. It also reduces the chances of a structure fire becoming a wildfire. Creating a defensible space involves developing a series of management zones in which different treatment methods are used depending upon the fuel type present. An example is found in the diagram below.

A. Defensible Space Zones



Zone 1: This area receives the most modification and treatment. It consists of an area 15 feet around structure in which flammable vegetation is removed. These 15 feet are measured from the outside edge of the home's eaves.

Zone 2: This area receives a fuel reduction treatment. The size of the area is determined by the average slope of the property. Within this zone continuity and arrangement of vegetation is modified. Remove stressed, diseased, dead or dying trees and shrubs. In the event of a crown fire reaching this zone, fuel will be broken up in such a way that the fire returns to the ground.

Zone 3: This area receives a traditional forest management treatment. The area starts from the end of zone 2 and ends at the landowner's property boundary. Landowners should contact the Colorado State Forest Service (970-641-6852) for assistance in managing this zone.

B. Steps to Determine Recommended Size of Defensible Space

The size of your defensible space is determined by the average slope of your property. A proper defensible space size can be determined using the three step process below.

1. 3 steps

Step 1. Determine average % slope of property ([appendix 2b, pg 51](#))

Step 2. Determine size of zone 2 using provided graph in [sec. 2, pg 15](#)

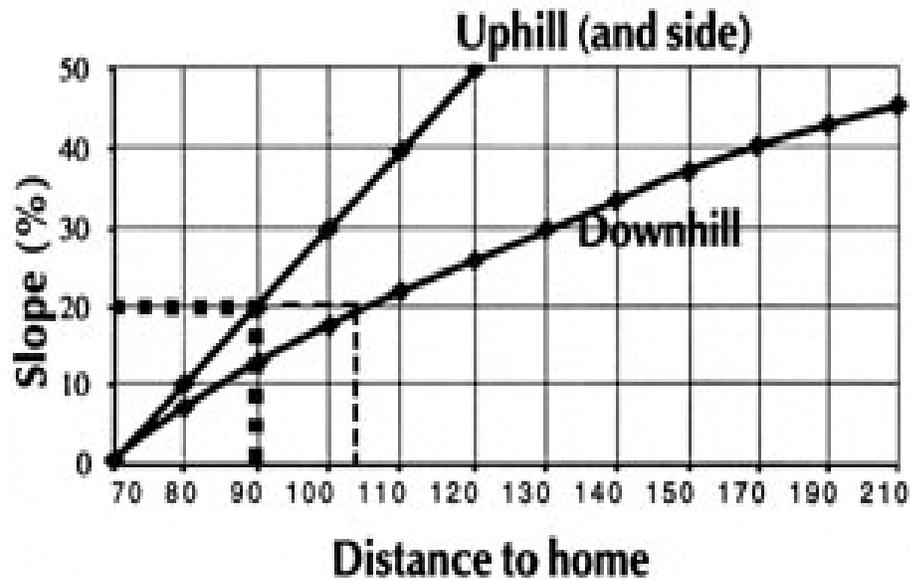
Step 3. Determine fuel type and appropriate mitigation recommendation in [sec. 3, pg 15](#)

Remember: Zone 1 is always 15 feet wide measured from the outside eaves and zone 3 extends from the end of zone 2 to the property boundary.

2. Zone 2 graph

This graph illustrates the recommended size of zone 2.

Directions: Find the property's average slope on left side of graph. Then follow that line over until it intersects with either the uphill or downhill line. Follow the point of intersection down to the bottom series of numbers. This number is the measurement from the eaves of the structure to the far edge of zone 2.



3. Fuel Types and Mitigation Recommendations for Defensible Space

Note: The subdivision has made a stump dump available to its residents. The dump is open to all material removed during fuels mitigation projects. It is located next to the clubhouse on Gold Basin Dr..(BM logistics map appendix # 4 pg 50)

- a. Aspen with Vegetative Understory
 - 1) Zone 1: Remove all **flammable** vegetation 15 feet out from the eaves.
 - 2) Zone 2: The vegetation in the understory should be mowed to a minimum height of 4 inches. This should be maintained throughout the year with periodic mowing.
 - 3) Zone 3: Monitor for insect and disease. Refer to [appendix #7-8 pg 56-57](#) for information regarding common Aspen disease problems.

- b. Mixed Conifer (fir, spruce)
 - 1) Zone 1: Remove all **flammable** vegetation 15 feet out from the eaves.
 - 2) Zone 2: The mixed conifer fuel type has a higher wildfire danger than Aspen due to its volatile needles. It requires significant fuel modification in order to reduce the wildfire danger. The idea for this fuel type in this zone is to break up the continuity, thus reducing the chances of a crown fire. Trees should be thinned to 10-12 foot spacing between stems. All residual trees should be pruned up 10 feet from ground level. Remove or evenly distribute all slash.
 - 3) Zone 3: This is an area of traditional forest management. The same prescription as zone 2 can be followed. With less attention paid to detail. Slash can be lopped and scattered up to a depth of 8 inches. *Close attention should be paid to slash density when lopping and scattering. This type of fuel can carry a wildfire long distances to a more receptive fuel type. Trees do not have to be

limbed up. This area should be monitored for insect and disease problems. Refer to [appendix 8 pg 57](#) for information on prominent conifer insects in the Gold Basin area.

Precaution: If your trees or home site are susceptible to wind throw and the trees have never been thinned, reduce the amount of trees removed in the first year. Engelmann spruce and Sub-alpine fir are especially prone to wind throw. Some good indicators of wind sensitive areas: 1) blown down trees 2) large root ball holes 3) ridge tops. If you have a wind sensitive area gradually remove the trees over a 6 year period. Remove more trees every 3 years until you have reached the recommended spacing. Only remove 1/3 of the large trees from a wind sensitive stand per entry.

c. Sage

- 1) Zone 1: Remove all **flammable** vegetation 15 feet out from the eaves.
- 2) Zone 2: This fuel is considered “flashy” due to its rapid response to changes in weather. It dries and absorbs moisture swiftly. The sage in zone 2 should be mowed to a height of 6 inches. Follow d-space size guidelines for conifer type fuels.
- 3) Zone 3: Break up the continuity of the fuel by creating large islands of sage with treated vegetation strips in between

These are just general guidelines. Landowners are encouraged to contact their local Colorado State Forest Service office (970)641-6852 for guidance with a handout called “Creating Wildfire Defensible Zones” (603.2) The Colorado State Forest Service can also assist landowners in finding a contractor that does fuels mitigation work.

C. Other Areas of Consideration

1. To prevent sparks from entering your home through vents; cover attics, soffit and floor vents with wire mesh no larger than 1/8 of an inch.
2. Prevent combustible materials and debris from accumulating beneath patio deck or elevated porches: screen under or box in areas below ground level.
3. Landscape with fire resistive plants
4. Incorporate walkways and retaining walls as man made fuel breaks
5. Clean gutters, eaves and roofs regularly.
6. Stack firewood and place propane tank at least 30 feet from structure and on uphill side on the contour of the structure.

VI. Community Preparedness

This section of the CWPP addresses what the subdivision residents and emergency response crews can do before and during a wildfire emergency situation. It will be broken up into two sections, **before** and **during**. The “**before**” section will explain what residents, HOA, local fire and sheriffs departments can do to lessen the danger of a wildfire emergency. The “**during**” section addresses what these same people can do in the event of a wildfire emergency. A response plan is found in this section that lays out the predetermined logistical planning.

A. Before a Wildfire Emergency

Wildfire awareness has been increasing over the years in Gold Basin subdivision. The HOA has hosted the Colorado State Forest Service at annual meeting to discuss wildfire prevention and safety. Many residents have done fuel reduction projects on their properties. These types of collaborative efforts and the ones listed below are essential to a wildfire safe community. Residents are encouraged to continue working with their government agencies in making their community a safer one.

The items below are things individual landowners, the entire HOA, the volunteer fire department, and the sheriff’s office can do to help prevent and prepare for wildfire situations. People involved should use this section as a check off list for their own residences and agencies.

1. Individual Homeowner Actions

- a. **Create** a defensible space around your home and other outbuildings. Dimensions vary depending upon the degree of slope of your property. Defensible space means providing room for firefighters to protect a building (See defensible space sec. pg 13.)
- b. **Remove** trash and other combustible material (ie. hay, lawn furniture, etc.) from the defensible space.
- c. **Mow** grass and weeds to less than 4 inches in height within 10 feet of structures, propane tanks, and utility service boxes.
- d. **Stack** firewood a minimum of 30 feet uphill from structure or on an even contour with structure.
- e. **Remove** trees growing through roof or porch.
- f. **Use** non-combustible roofing material.
- g. **Clean** roof and rain gutters of all debris.
- h. **Remove** any branches within 15 feet of the chimney.
- i. **Utilize** a spark arrester on the chimney.

- j. **Place** screens on foundation and vent eaves.
 - k. **Post** name/address signs which are clearly visible from the road.
 - l. **Widen** driveway and provide a turn-around space for emergency vehicles.
 - m. **Develop** outdoor water supply.
 - n. **Practice** a family fire drill and evacuation plan.
 - o. **Make** a list of items to take should evacuation be required.
2. Subdivision/Homeowner Actions
- a. In conjunction with the Gunnison Basin Wildfire Council, **place** and maintain Fire Danger Sign(s) at all Subdivision entrances.
 - b. **Develop** and maintain Defensible Space around the following:
 - 1) All community-held facilities
 - 2) Propane and gasoline tanks
 - c. **Encourage** homeowners to develop Defensible Space around individual homes.
 - d. **Maintain** a well thinned forest on all Open Space lands.
 - e. **Sign** all roads. (Letters should be reflective and a minimum of four inches high.)
 - f. **Encourage** homeowners to sign their driveway with their name/address.
 - g. **Widen** roads and improve height clearance to facilitate easy access of emergency vehicles.
 - h. **Maintain** dry-hydrant in main lake.
 - i. **Notify** all new residents of wildfire hazard and supply each with appropriate hazard mitigation material available through the Gunnison Basin Wildfire Council.

3. Fire Department Actions

- a. **Obtain** enough copies of the Wildfire Hazard Evaluation Map to place one in each piece of equipment and in each station.
- b. **Conduct** "familiarization" drills within the subdivision once per year.
- c. **Ensure** that wildland fire tools are maintained on each piece of equipment.
- d. **Develop** and maintain a 10-person wildland fire cache, in addition to the tools on each piece of equipment.
- e. **Formalize** agreements for water use with the appropriate owner.
- f. **Ensure** on a regular basis that each firefighter has wildland Personal Protective Equipment and has received proper and appropriate training.
- g. **Familiarize** yourself with the County Wildfire Annual Operating Plan.
- h. **Host** periodic "Wildfire Awareness/Hazard Mitigation" meetings within the subdivision.
- i. **Encourage** development of alternative water sources and Defensible Space.

4. Sheriff's Department Actions

- a. **Obtain** enough copies of the Wildfire Hazard Evaluation Map to place one in each vehicle and in each station.
- b. **Conduct** "familiarization" drills within the subdivision once per year.
- c. **Formalize** agreements for water use from the appropriate owner.
- d. **Facilitate** acceptance/use of the County Wildfire Annual Operating Plan.
- e. With CSFS, **host** periodic "Wildfire Awareness/Hazard Mitigation" meetings within the subdivision in cooperation with the local Fire Department.
- f. **Develop/practice** evacuation techniques.

B. During a Wildfire Emergency

This section addresses what residents and emergency response crews should do in the event of a wildfire emergency. The intent is to make an emergency situation operate efficiently and with minimal surprises. By having specific areas and responsibilities

delegated an offensive plan can be put into action rapidly. A response plan has been developed to facilitate this rapid and efficient response.

RESPONSE PLAN

1. Fire Protection Responsibility

- a. Agency
 - 1) Structural: Gunnison Fire Protection District
 - 2) Wildland
 - a) Private land: Gunnison County.
By and through the County Sheriff.
 - b) Federal land: Bureau of Land Management.
- b. Command - The first initial attack Incident Commander (IC) on the scene shall serve as IC until properly relieved.

2. Alarm Response: These are equipment that are likely to respond. Actual response will depend on nature of situation and current commitments.

Response Agency	Station	Description Of Equipment	Response Time
GCFPD	Gunnison	2000 Gal. Tanker	25 minutes
GCFPD	Gunnison	Class one pumper	25 minutes
GCFPD	Gunnison	Brush fire unit	25 minutes
GCFPD	Gunnison	Brush fire unit	25 minutes
BLM	Montrose	Type 5 or 6 Engine	125 minutes
USFS	Gunnison	Type 6 Engine	25 minutes
USFS	Gunnison	Type 6 Engine	25 minutes

3. Access

- a. Road System
 - 1) Most are constructed of gravel.
 - 2) Some will support two lanes of traffic.
 - 3) Some are loop roads.
 - 4) Some are dead-end roads.
 - 5) Road signs are not present. **Gold basin is encouraged to get road signs. In the event of an emergency time is critical and an error in direction can delay response.**
- b. Driveways:
 - 1) Individual home driveway width and height clearance is inadequate for emergency equipment.
 - 2) Some individual homeowners have posted their name and address.

4. Water Supply (Water supply map appendix # 6 pg 55)

a. Ponds/Creeks/Lakes/Rivers

Type P/C	#/Name	Status P/I	Helicopter Accessible Y/N	Pump Required Y/N	Water Capacity When Full (1,000 GALS.)
P	Gold Basin Ponds	I	Y	Y	Seasonally Full

Key: Type: P = Pond, C = Creek
 Status: P = Permanent, I = Intermittent
 Helicopter/Pump: Y = Yes, N = No
 # (Ponds) = measure in 1000's of gal.

* Gunnison river is approx. 13 miles NW of the subdivision.

5. Locations: (logistics map appendix # 4 pg 53)

a. Command Post - The following location(s) are recommended Incident Command Post (ICP) location(s):

- 1) 3rd Cattle Guard from Hwy 50 .25 miles north of GB on CR 38
 Vegetation: This area is a mixture of grass and sage. A large portion of the area is void of vegetation. Maintenance will require periodic sage work every 10 years. The entire location is owned by the BLM

b. Staging Area(s) - The recommended staging area for operations within the subdivision is/are designated as:

- 1) 3rd Cattle Guard from Hwy 50 .25 miles north of GB
 Vegetation: This area is a mixture of grass and sage. A large portion of the area is void of vegetation. Maintenance will require periodic sage work every 10 years. The entire location is owned by the BLM

c. Safety Zone(s) - The recommended safety zone(s) for operations within the subdivision is/are designated as:

- 1) 3rd Cattle Guard from Hwy 50 .25 miles north of GB on CR 38
 Vegetation: This area is a mixture of grass and sage. A large portion of the area is void of vegetation. Maintenance will require periodic sage work every 10 years. The entire location is owned by the BLM
- 2) Intersection CR 6 YY and High Country Road
 Vegetation: This area is a mixture of grass and sage. A large portion of the area is void of vegetation. Maintenance will require periodic sage work every 10 years. The road is owned by the county and several private lots are adjacent to the area. Mowing was done in 2007 and should be retreated every 10 years.

:

- d. Helispot(s) - The recommended helispot(s) for operations within the subdivision is/are designated as:
 - 1) 3rd Cattle Guard from Hwy 50 .25 miles north of GB on CR 38
 - 2) Intersection CR 6YY and High Country Road

- 6. Evacuation (**Gold Basin road maps pgs 6-8**)
 - a. Procedure
 - 1) The Incident Commander or Incident Command Team in coordination with local authorities is responsible for initiating evacuation planning.
 - 2) Local government is responsible for assisting in the dissemination of information to local residents.
 - 3) All public information including that given door to door will be approved by the Incident Commander.
 - 4) Reoccupation of homes will occur only after the Incident Commander determines it to be reasonable
 - 5) The decision to initiate actual evacuation will come at the order of the Incident Commander in coordination with the appropriate jurisdiction/authority required by law to participate/order the evacuation process.

 - b. Escape Route during Emergency (**refer to Gold Basin Road Maps on Pg 8-9**)
 - 1) Evacuations will use County Road 38 to Gunnison
 - 2) Iris Lane to town of Iris and on to Saguache

- 7. Radio Frequencies
 - a. Tactical Frequency - Each agency's normal operational frequency. It shall be used for communications on scene within the response agency.

 - b. Operational Frequency - 154.280 (FERN); to be used in passing tactical orders from the Operations Chief or Incident Commander. A second channel may be operated on 154.145 (GCFPD).

 - c. Command Frequency - 155.475 (NLEC); to be used to coordinate activities; pass data to ICP, as a back-up for the operational frequency, and for entry communications between ICP and responding agencies.

 - d. Interagency radio cache may be requested through the local Interagency Dispatch Center.

9. Adjacent Property:

Ownership	Phone
BLM	(970) 641-0471
USFS	(970) 641-0471
Hollenbeck Inc	

10. General Goals/Objectives:

a. Strategic

- 1) Ensure the safety of all firefighters, residents and bystanders.
- 2) Conservation of property by minimizing damage and protecting all structures and improvements within the fire perimeter.
- 3) Stabilize incident and contain fire to specific geographic areas.
- 4) Protect exposures threatened by the fire but outside current fire perimeter.
- 5) Extinguish fire.
- 6) Perform necessary rehabilitation work.

b. Tactical

- 1) Evacuation or in-place shelter of residents.
- 2) Establish traffic control within affected area.
- 3) Briefing of personnel on safety and hazards.
- 4) Determine Operational Mode --
 - a) Offensive Mode
 - b) Defensive Mode
 - c) Combination
- 5) Determine resource needs and assignments
 - a) Type and #
 - (1) Aircraft
 - (a) Rotor wing
 - (b) Fixed wing
 - (2) Mechanized
 - (a) Dozer
 - (b) Road Grader
 - (c) Other
 - (3) Hand Crews
 - (4) Water/Chemical Delivery Systems
 - (a) Engines
 - (b) Tenders
 - (c) Portable pumps
 - (d) Other
 - b) Assignment
 - (1) Reconnaissance
 - (2) Medical
 - (3) Suppression
 - (a) Line construction

- (b) Prepare structures (See Section H)
- (c) Burn out
- (d) Other
- (4) Rehabilitation
- 6) Manage utilities
 - a) Water Supplies
 - b) Electrical
 - c) Natural Gas & Propane
 - d) Telephone

11. Anticipated Problems:

- a. Firefighter Safety -
 - 1) Inexperience of crews with Extreme wildfire behavior.
 - 2) Narrow roads and private drives.
 - 3) Confusion and panic associated with evacuation.
 - 4) Limited availability of personnel and resources.
 - 5) Overhead power lines and utility service boxes.
 - 6) Septic systems.
 - 7) Frightened and confused pets.
 - 8) Hazardous materials, including propane and gasoline tanks.
- b. Wildland Fire WATCH OUT Situations
 - 1) Failure to adequately scout and size up fire.
 - 2) Personnel are not familiar enough with terrain to work after dark.
 - 3) Safety zones and escape routes not identified.
 - 4) Individuals are unfamiliar with weather and local factors that affect fire behavior.
 - 5) Personnel are uninformed on strategy, tactics, and hazards of the fire.
 - 6) Personnel are unclear on instructions or assignments.
 - 7) Personnel are out of communication with crew members or supervisor.
 - 8) Line construction is occurring without a safe anchor point.
 - 9) Line construction is occurring downhill towards the fire.
 - 10) Resources are attempting a frontal assault on the fire.
 - 11) There is unburned fuel between firefighters and the fire.
 - 12) Personnel cannot see the main fire and are not in contact with someone who can.
 - 13) Personnel are on a hillside where rolling material can ignite fuel below.
 - 14) The weather is getting hotter and drier.
 - 15) The wind is increasing and/or changing direction.
 - 16) Personnel are reporting frequent spot fires across line.
 - 17) Terrain and fuels make escape to safety zones difficult.
 - 18) Personnel feel like taking naps near the fire-line.
- c. Structural Fire WATCH OUT situations
 - 1) Poor access to the fire.
 - 2) Inadequate bridge load limits.

- 3) Garages with closed, locked doors.
- 4) Inadequate water supply.
- 5) Windows are black or smoked over.
- 6) There are septic tanks and leech lines present.
- 7) Structure is burning with puffing rather than steady smoke.
- 8) Construction is wood with shake shingle roof.
- 9) Natural fuels within 30 feet of the structure.
- 10) Known or suspected panicked residents or visitors are in the vicinity.
- 11) Windows are bulging and the roof hasn't been vented.
- 12) Additional fuels can be found in open crawl spaces beneath the structure.
- 13) Structure is in or near a chimney or canyon.
- 14) Elevated fuel or propane tanks are present.

d. LCES

- 1) Place lookouts around the fire area to observe fire behavior and warn resources of potential hazards.
- 2) Make sure suppression resources have adequate communication.
- 3) Identify escape routes and assure all resources can identify these routes at all times.
- 4) Identify safety zones and assure resources know where they are located.

VII. Vegetation Management

A. Tree Species Overview

Douglas fir is a prevalent species in Gold Basin subdivision. This species has an elevation range of 6,000-9,000 feet. Douglas fir is a wind-firm species due to its deep root system. This species has a high wildlife food value. Small animals rely upon this species nut crop for food. Deer have been known to browse this species in harsh times.

Many of the Douglas fir stands in Gold Basin are over mature. Over mature trees are highly susceptible to Douglas fir bark beetles due to their low vigor. Bark beetles can build up population in weaker trees and then move onto healthier ones. Many of these stands and others are overstocked as well and contain an abundance of ladder fuels. This makes these particular stands susceptible to crown fires. In both cases of proper management is the solution. Dead, dying, diseased and over mature trees should be removed in order to promote a vigorous stand. In the case of an overstocked forest a thinning from below of the smaller trees is warranted. This will allow the residual stand of trees to be vigorous through increased sunlight, nutrients, and water.

A small amount of Blue Spruce is found in Gold Basin subdivision. This species has a high wildlife food value for small rodent. Small animals rely upon this species' nut crop for food. Deer and elk have been known to browse this species in harsh times. Blue Spruce tends to be found in lower elevation draws and riparian areas. Spruce prefers wetter areas than Douglas fir and north facing slopes. Its elevation range is

8,000 to 11,000. This species is generally not wind firm and is subject to blow over if thinned too heavily. Close attention to thinning prescriptions should be paid while thinning on ridge tops.

Aspen is the final majority tree species found in the Gold Basin subdivision. The leaves of aspen do not contain the volatile chemicals found in conifers. The lack of volatile chemicals makes them less likely to form crown fires. This makes aspen a very desirable species in a WUI setting. Wildfire mitigation in this species requires mowing the vegetation in the understory to a height of 6-8 inches near homes. However if conifer have begun to heavily invade the stand, thinning of the understory trees might be necessary. In order to protect the integrity of the moderate wildfire risk trait of the species.

The aspen of the Gold Basin area can be categorized into two sub- categories, High country Aspen (+9,000), Low country Aspen (-9,000). Each sub category occupies sites that differ ecologically from one another. The sites have different amounts of water, nutrients and sun exposure. These factors make each stand grow uniquely.

The high country Aspen (9,000'+ elevation) in Gold Basin are present because there was a disturbance in the forest, probably wildfire. These aspen occupy sites that are productive and have adequate amounts of precipitation. Aspen in these sites achieve large diameters. Many of these stands are however over mature and show signs of decline. They are in need of regenerating management.

The low country Aspen, occupy sites below 9,000'. These aspen mainly grow in the low lying areas of the sage. These areas collect additional moisture allowing the aspen to survive. Aspen stands of this type are regionally showing signs of decline (fungus, low crown ratios). Several factors are believed to be the cause. The region has been in a drought trend. This has put increased pressure on the minimal amounts of water available in these delicate ecosystems. Sage is out competing aspen and grasses for water and is dominating sites. This has put a even greater constraint on the dwindling water supply. Sage is able to utilize its tap root and drought resistance traits to have an advantage over other plants. It has moved into areas that have historically been aspen and grass dominated. This encroachment has put an in-balance in the regular processes of these ecosystems. Many of these aspen stands are also in need of regeneration due to age. Aspen live 80-100 years and then begin to decline. When stands are not regenerated through disturbance the central root system begins to die. Once the central root system dies the aspen stand will not regenerate.

In a WUI setting aspen becomes a valuable part of a communities overall wildfire defensiveness. This is due to its moderate wildfire risk rating. Aspen forests like the rest of the Gold Basin ecosystems are constantly changing. As aspen matures it requires change or disturbance in order to survive. Many of the aspen stands in Gold Basin are in a stage of over maturity and decline. The best way to ensure the survival and long term health of aspen in Gold Basin is through management. A mosaic across the landscape which incorporates regenerating patch cuts.

Sage with a grass component is the final vegetative cover found in Gold Basin. This vegetative type is found on sunny, semi-dry and desert like areas. It grows in dense

groups. Both sage and grass respond rapidly to changes in relative humidity. Sage leaves contain volatile chemicals. The chemicals combust very easy and increase its wildfire danger. The continuity of this fuel should be broken up. The goal is to create islands of fuel with breaks of treated fuel in between.

The Gold Basin area has been in a drought pattern for several years. This lack of precipitation coupled with years of wildfire suppression has allowed the sage to dominate many sites and shade out native grasses. Wildlife depends on these grasses in order to survive. In the past frequent low intensity wildfires would thin out the sage in a mosaic pattern of burned and unburned areas. This same pattern can be mimicked with the use of machinery and achieve the same goals. This type of treatment has been used successfully by both Gold Basin residents and BLM, on lands adjacent to Gold Basin.

B. Prescriptions

The forests in Gold Basin subdivision are in declining health. This is due to lack of fire and management, which has created overstocking, over mature timber that is insect and disease susceptible. Below is a general overview of the management prescriptions for vegetative cover types found in Gold Basin. The objective is to reduce fuel and prevent crown fires. Thinning will be from below with an average spacing of 10-12 feet between stems. Variability is based upon species traits and slope position. Selection criterion for removal is listed in descending order: dead, diseased, and poor form. All residual trees with in defensible space and fuel breaks are to be pruned up ten feet from ground level to prevent ladder fuel issues.

In pre-settlement times, low intensity ground fires would periodically burn through the area. The low intensity ground fires thinned the forest by scorching and killing seedlings and saplings. These forests had significantly lower stocking than the current forests. Correctly stocked forests are better able to defend themselves from wildfire and insect and disease. When too many trees compete for the same limited amount of nutrients and sunlight, an unnatural weak forest grows. Overstocked forests are also highly susceptible to crown fires, due to the ladder fuel effect. The ladder fuel effect is created when large amounts of trees are allowed to grow in the understory of a forest. The understory trees allow a ground fire to climb up low lying branches and into the crowns of big trees. Forest management is the solution to better forest health and reduced fuels.

Age is a second factor in the declining health of Gold Basin's trees. Each specific species of tree has a biological maturity that plays a major role in a forest's health. Once trees meet their biological age of maturity they begin to decline. Over mature trees are more susceptible to insects and diseases due to their low vigor. By removing over mature trees a younger and more vigorous stand of trees can replace them.

Most of the high to extreme wildfire risk areas in the subdivision can be described as dense conifer stands (Douglas fir) with young conifers growing in the shade of mature trees. These conditions are due to the succession of forests in the Rocky Mountains. Succession is a term used to describe how an ecosystem is forever changing. The ecosystem in Gold Basin has relied upon fire to implement change.

Since the settlement of the area regular fires have been excluded from this ecosystem. This has caused a stagnation of the ecosystem. A forest ecosystem like the one in Gold Basin is continually changing. The change is not sudden but spread out over decades and perhaps centuries. The change involves stand composition, structure and biomass.

The BLM has incorporated conifer management into their plan of work for Gold Basin WUI. The plan addresses the following issues: wildfire, stand composition and forest health. The general prescription is a thinning from below. This type of prescription concentrates on the smaller trees in the under story (>8inches dbh). The prescription is designed to leave the biggest and most fire resilient trees. The understory trees are the target due to the ladder fuel effects. The ladder fuels allow ground fuels to get into crowns of trees. Crown fires are very destructive and hard to control. The prescription calls for removal of 90% of conifer trees 8 inches (dbh) or less growing under or within 20 feet of larger trees. Remove 20% of conifers that are 8-10 inch (dbh) with the same spacing guidelines. In areas that are dominated by trees in the 8-10 inch (dbh) class a 20 foot spacing guideline should be followed. All branches of residual trees should be limbed up 6 feet. Again this will decrease the ladder fuel effect. In conifer stands with aspen, conifer will be thinned to 20 foot spacing between stems. The aspen will not be cut in these areas due its low wildfire hazard rating.

The BLM thinning prescriptions is adequate for specific project areas. It was designed for fuel break and insect/disease susceptibility reduction purposes. It is appropriate to use it in zone 3 of defensible space (refer to d-space section Pg 13). It is not an adequate amount of fuel reductions for defensible space zones 1 and 2.

The BLM has already begun work on the 190 acre project and will continue through October of next year. A private contractor is performing the work. Landowners can receive a discounted price on their own projects by utilizing the BLM contractor at this time. Once a contractor is set up in an area his mobilization costs are reduced when moving to a new project in the general area. This can reduce the cost of getting projects complete. This is especially true if your property joins the BLM thinning project area.(BLM Treatment Map Pg 47) Gold Basin is also a secluded subdivision. It is hard to get contractors out to these types of secluded communities, especially for small acreage. The BLM treats large acreages which entices contractors. Landowners are encouraged to utilize the BLM contractors.

Aspen should be promoted in WUI areas due to its low wildfire risk. Promoting and preserving aspen stands requires management. Many of the aspen stands in Gold Basin subdivision have reached or surpassed their biological maturity. Aspen live 80-100 years and then the stand begins to show signs of decay. (fungus, low crown ratios) Aspen stands exist through a network of stems connected by an extensive root system. Once aspen stands reach their biological maturity and are not regenerated through disturbance, the central root system begins to die and the potential to loose the species from the site increases. Conifer begins to invade the understory of the maturing aspen and eventually the aspen is shaded out or dies from old age and the conifer takes over the site. This increases the wildfire potential of a once moderate risk.

The BLM has aspen regeneration/management in their overall mitigation/management plan for the Gold Basin WUI. They are using a Fecon Bull Hog grinder mounted on a large skid loader for the low country Aspen (-9,000' elevation). The machine masticates the sage and declining aspen, while leaving the slash in place. This type of management promotes longevity of aspen stands by reducing competition for water, and regenerating cuts. Regeneration can only occur if the root system is still viable. If the root system is dead because of lack of disturbance, then the regeneration will not occur. If regeneration does occur then fencing may be required to reduce over browsing. The cuts also improve the grass component by reducing the sage encroachment and dominance. Regardless of the outcome these projects reduce fuel. This type of management creates a mosaic of diverse wildlife cover types across the landscape. The prescription was for all brush (sage, snow berry, creeping juniper) to be masticated within the stands. All live aspen 2 inches or greater was masticated. Snags greater than 8 inches were saved for cavity nesting birds. A buffer was also masticated around the stand to reduce encroachment. The BLM treated a total of 82 acres in this manner. Residents are encouraged to look over their stands of aspen for signs of decline. If aspen decline is a concern, residents should contact the Colorado State Forest Service for a site visit to determine management plan.

The BLM is also regenerating 21 acres of high country Aspen stands (+9,000 feet elevation). Many of these stands are also in a state of decline (fungus, low crown ratios). The prescription is to clear cut all aspen greater than 2 inches dbh. The prescription also calls for thinning of conifer encroachment to 20 foot spacing. This treatment will encourage re-sprouting and longevity of the stands.

The remaining vegetative cover is grass and sage brush. This cover type has a moderate to high wildfire risk. It is referred to as a "flashy fuel" and can combust rapidly. Grass and sage respond drastically to fluctuations in humidity, making their fuel moisture dangerously sporadic. These cover types can be managed as safe, healthy, and attractive landscapes, but if not managed, they become dense and fire receptive. This is what is happening at Gold Basin. Like the forest cover type the sage/grass is also fire dependent. Without regular fire in the ecosystem to thin the sage, grass cannot compete and is shaded out. The grass provides a needed source of food for local wildlife. Natural fires especially in range land tend to burn in a mosaic pattern. Some areas are burned more often than others. The use of machinery to masticate the sage can mimic this pattern. The recommendation is to mow 80% of the sage in a given area and leave islands of untreated to cover the remaining balance. This type of treatment leaves a more natural and aesthetically pleasing look while still covering multiple objectives. The fuel continuity is broken up and the wildfire risk is reduced. The mowed areas will produce more grass to benefit the wildlife. These types of treatments need to be repeated every 15-20 years, depending upon the productivity of the land.

The best long term protection to the threats of insects, disease, and wildfire is for Gold Basin to manage their forests. Homeowners should begin management by thinning trees around their homes. This will provide "Defensible Space" for fire

fighters to protect structures. It will also increase the health of the forest on individual properties. Defensible space guidelines can be found on [pg 13](#).

C. Fuel Breaks (Fuel Break Map [PG 33](#))

A fuel break is a strip of land in which the fuels have been modified in order to slow the spread of a wildfire. They are most effective when anchored. Examples of fuel break anchor points are rivers, creeks, rock outcrops or less flammable vegetation. It is of varying widths based upon fuel and % slope. Several factors determine the need for a subdivision to install fuel breaks. They are high/extreme wildfire hazard areas, steep slopes, crowning potential, heavy continuous fuels and ignition sources. Gold Basin subdivision has all of the above factors throughout most of the subdivision.

Fuel breaks that are installed in Gold Basin subdivision will cover private lots, and public lands. A collaborative effort is needed in order to have a fuel break that a wildfire will respect. Gold Basin subdivision is approximately 35 minutes away from any emergency crew response. In the event of a wildfire threatening the subdivision, a fuel break can reduce the spread of the fire by returning a crown fire to the ground. This essentially can turn an uncontrollable crown fire into a controllable ground fire.

The stand is thinned and remaining trees are pruned to remove ladder fuels. Brush, heavy ground fuels, snags, and dead trees are disposed of and an open park like appearance is established. The idea is to separate the crowns in order to stop a crown fire. The ground fuels and ladder fuels are mitigated to keep the fire on the ground and prevent it from returning to the crowns. Crown fires consume fuels rapidly and pose the greatest threat of life and property loss.

Sage dominated sites can be treated with various sage reduction machines examples: Fecon Bullhog, brush hog. The equipment depends upon the topography and size of vegetation. Sites with ground in excess of 30% slope generally cannot be treated with a brush hog or other similar machines that are pulled behind a tractor.. Sites with vegetation in excess of +4" dbh will require a Fecon Bullhog or similar machine. The sage is treated to a maximum height of 6 inches. These areas need to be retreated every 10 years.

1. Fuel Break Project Descriptions

This section will give a description of each fuel break project illustrated on the Fuel Break map. The projects are listed according to their implementation priority. Each project will be unique and require specific onsite prescription adjustments in order to achieve the objective. The approximate size of the fuel break is based fuel type.

Note: refer to the following: CSFS Handout [Fuel Break Guidelines for Forested Subdivisions and Communities](#); the fuel break map on page # 36;

- a. Fuel Break #1
Approximate size:32ac
Average % Slope: 10-30+
Vegetative Cover Types: Timber 18ac (Douglas fir) Sage 14ac
Width: 150'(sage) 300'-350' (timber) (% slope dependent)

Description: This fuel break is located in the central part of the subdivision. This fuel break is important for several reasons: fuel is dense and continuous, steep topography and location to structures. The timber is heavily inundated with ladder fuels. This makes the stand of trees more susceptible to destructive wildfires. The area is also frequented by ingress/egress traffic which could be a potential ignition source. This fuel break will require the collaboration between the BLM and several private landowners. It covers both types of ownership. The fuel break will be anchored into CR 6UU. It will be anchored in the south to Quartz Hill Rd.

The following private tracts of land will have to be involved in order for the fuel break to achieve its greatest potential: **Tracts 31, 30, 4, BLM**

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.
- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches

Cost

Timber thinning 18 acres * \$1500.00 = \$27,000.00

Sage Mastication with tracked machine due to 30% slope 14 acres * \$200.00 = \$2,800.00

Approx.Total Estimated Cost: \$29,800.00

* Grants can be applied for to cover 50% of the costs, if funds are available

HOA and landowners should work with CSFS in applying. **(Review grant section on page 44)**

- b. Fuel Break # 2
Approximate size:43 ac
Average % Slope: 10-20
Vegetative Cover type: Timber: 25 ac Sage 31 ac
Width: 150'(sage) 300'-350' (timber) (% slope dependent)

Description: this fuel break is located in the North East corner of the subdivision. It is important for several reasons: Dense continuous fuels and location to structures. The area is dominated by sage with a small amount of timber in the south portion. The fuel break will be anchored in the north to subdivision road Iris Lane. It will be connected in the south to the 2004 BLM forest thinning project just south of tract 1.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. **1, 3, 5, 7, BLM**

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir and Ponderosa Pine: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.
- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Timber Thinning: 25 acres * \$1,500.00 = \$37,500

Sage Mowing with a Brush Hog: 31 acres * \$60.00 = 1,860

Approx. Total Cost: \$39,360.00

* Grants can be applied for to cover 50% of the cost, HOA and

c. Fuel Break # 3

Approximate size: 111 ac

Average % Slope: 10-35

Vegetative Cover type: Timber: 73 ac Sage 38 ac

Width: 150' (sage) 300'-350' (timber) (% slope dependent)

Description: this fuel break is located in the southern region of the subdivision and follows the southern border. It is important for several reasons: Dense continuous fuels and location to structures. The prevailing winds for the area are out of the south west. In the event of a landscape scale fire this fuel break will be an important piece of defense for the subdivision. Landscape scale fires burn until a change in weather, fuel or topography. They are generally wind driven and can consume several acres in a short period of time.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. **Hollenbeck Inc., BLM**

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir and Ponderosa Pine: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.
- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Timber Thinning: 73 acres * \$1,500.00 = \$109,500

Sage Mowing with a Brush Hog: 38 acres * \$60.00 = \$2,280

Approx. Total Cost: \$111,780.00

* Grants can be applied for to cover 50% of the costs, if funds are available

HOA and landowners should work with CSFS in applying. (Review grant section on page 44)

d. Fuel Break # 4

Approximate size: 26 ac

Average % Slope: 10-20

Vegetative Cover type: Sage 26 ac

Width: 150'(sage) 300'-350' (timber) (% slope dependent)

Description: this fuel break is located in the North West corner of the subdivision. It is important for several reasons: Dense continuous fuels and location to structures. The area is dominated by sage with a small amount of timber in the south portion. The fuel break will be anchored in the north to subdivision road Deer Play Run. It will be connected in the south to Fuel Break # 2.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. 22, 8, 7, 5 * Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir and Ponderosa Pine: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.
- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Sage Mowing with a Brush Hog: 26 acres * \$60.00 = 1,560

Approx. Total Cost: \$1560.00

* Grants can be applied for to cover 50% of the costs, if funds are available

HOA and landowners should work with CSFS in applying. (Review grant section on page 44)

e. Fuel Break # 5

Approximate size: 36 ac

Average % Slope: 10-20

Vegetative Cover type: Timber: 8 ac Sage 28 ac

Width: 150' (sage) 300'-350' (timber) (% slope dependent)

Description: this fuel break is located in the North West corner of the subdivision. It is important for several reasons: Dense continuous fuels and location to structures. The area is dominated by sage with a small amount of timber in the south portion. The fuel break will be anchored in the north to subdivision road Lick Creek Lane. It will be connected in the south to the 2004 BLM forest thinning project just south CR # 38.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. **BLM.**

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir and Ponderosa Pine: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.
- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Timber Thinning: 8 acres * \$1,500.00 = \$12,000

Sage Mowing with a Brush Hog: 28 acres * \$60.00 = \$1,680

Approx. Total Cost: \$13,680.00

* Grants can be applied for to cover 50% of the costs, if funds are available

HOA and landowners should work with CSFS in applying. (Review grant section on page 44)

f. Fuel Break # 6

Approximate size: 20 ac

Average % Slope: 10-20

Vegetative Cover type: Sage 20 ac

Width: 150' (sage) 300'-350' (timber) (% slope dependent)

Description: this fuel break is located in the far North of the subdivision. It is important for several reasons: Dense continuous fuels and location to structures. The area is dominated by sage with a small amount of timber in the south portion. The fuel break will be anchored in the north west to a BLM service road. It will be anchored in the North East to BLM service road.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. **BLM** .

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir and Ponderosa Pine: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.
- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Sage Mowing with a Brush Hog: 20 acres * \$60.00 = \$2,060

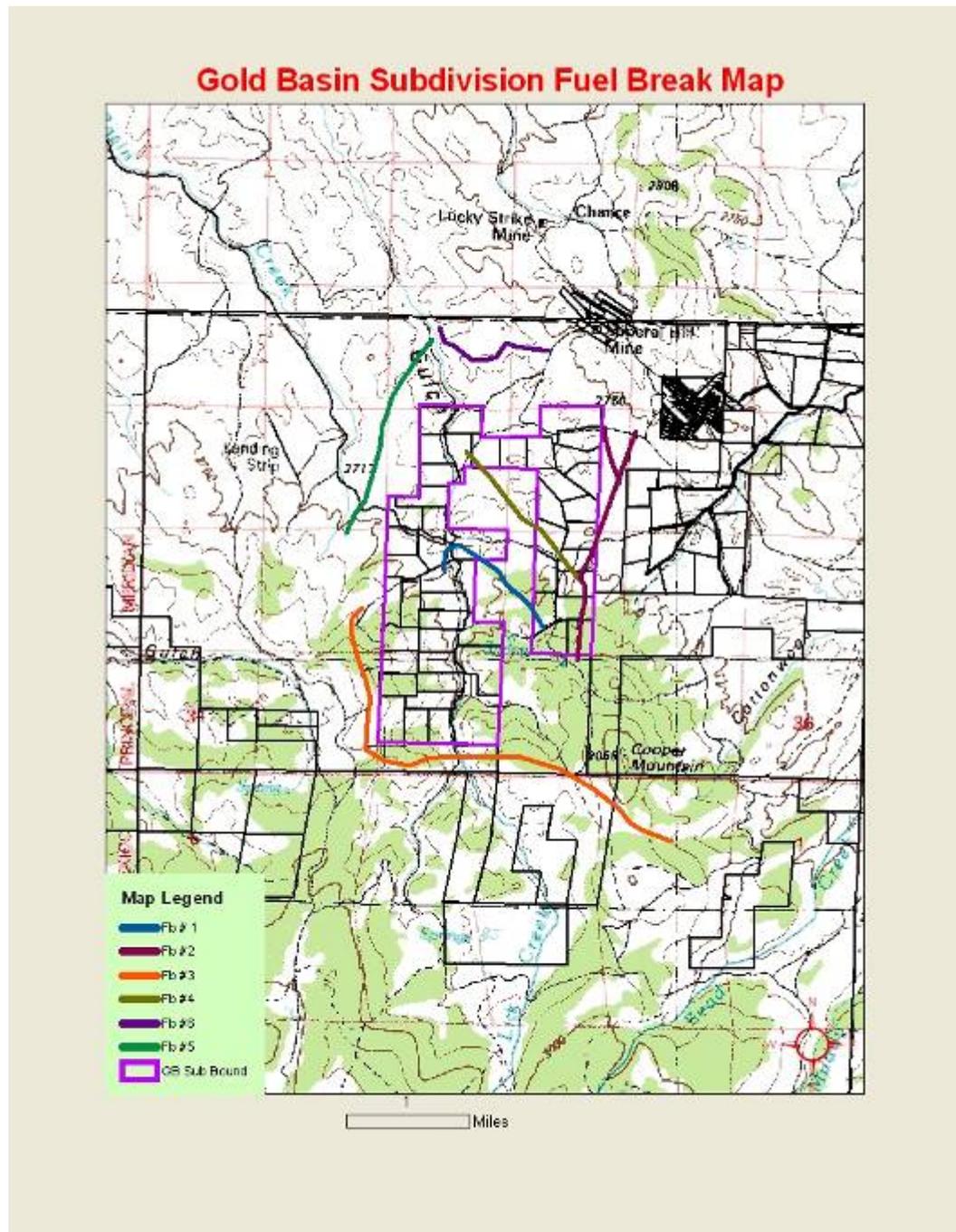
Approx. Total Cost: \$2,060

* Grants can be applied for to cover 50% of the costs, if funds are available

HOA and landowners should work with CSFS in applying. **(Review grant section on page 44)**

D. Fuel Break Map

The Fuel Break map shows where fuels treatment is needed due to extreme wildfire danger. The breaks are all color coded and in order of priority. The map illustrates approximate locations of fuel breaks. Actual on the ground treatments will be similar but not as uniform. Treatment might not be possible in all areas designated on the map due to the extreme topography.



E. General Fuel Break Prescription according to vegetative type

The table below shows the recommended size of a mixed conifer fuel break according to % slope. The section also gives specific prescriptions according to vegetative type.

1. Fuel Break Size for Mixed Conifer Fuel Break

% slope	Uphill distance	Downhill distance	Total width
10	140	165	303
30	120	195	315
60	100	240	340

a. Prescriptions

Note: CSFS has a list of contractors available for projects. Subdivisions are encouraged to work with CSFS in designing projects and obtain a copy of the CSFS handout Fuel Break Guidelines for Forested Subdivisions and Communities.

Crown separation is the key factor in a successful fuel break. A **minimum** of 10 feet between the edges of tree crowns is recommended. As slope increases crown spacing should also increase. All residual trees should be pruned up 10 feet from ground level. Slash should be removed or lopped and scattered evenly throughout the area.

Precaution: If your trees are susceptible to wind throw and the trees have never been thinned, reduce the amount of trees removed in the first year. Start with a spacing of diameter plus five between stems. Some good indicators of wind sensitive areas: 1) blown down trees 2) large root ball holes 3) ridge tops. If you have a wind sensitive area gradually remove the trees over a 6 year period. Remove more trees every 3 years until you have reached the recommended spacing. Follow the diameter plus five spacing recommendation each year for wind sensitive areas.

2. Fuel Break for Sage

a. Prescription

Mow vegetation to a maximum height of 8 inches. This type of vegetation is best mitigated with a Fecon Bullhog or similar brush mower. Follow size recommendations in the below table

% Slope	Width (feet)
10	100
20	150
30	200

F. Escape Routes/ Safety Zone (ER and SZ map PG 43)

An escape route is a preplanned and understood route that emergency officials have determined to be the best way to a safety zone or a low fire risk area. The escape routes can be broken up into two categories: primary and secondary. The primary escape routes utilize county maintained road. These roads are passable to any vehicle. Secondary escape routes are generally BLM service roads. These roads are rarely maintained and may not be passable without a high clearance four wheel drive vehicle.

The safety zone is a preplanned area of sufficient size and suitable location that is expected to protect residents from wildfire without using fire shelters. These areas are used as a safe place to gather people and take account for all residents. Primary safety zones need to be at least 1 acre in size in order to accommodate all Gold Basin residents and vehicles. The secondary safety zones are smaller and will not accommodate the entire subdivision.

This document identifies primary and secondary escape routes and safety zones. The primaries should be utilized first. If these routes are blocked by fire then secondary routes should be utilized. Current condition of all of the escape routes in Gold Basin is poor. The fuels in these areas are dense and continuous. During a wildfire a fast, clear and safe escape route is essential. When fuel is untreated along escape routes, it could make the route impassable. This section addresses location, escape plans, initial fuel reduction prescriptions, cost, grants, lots involved and maintenance.

The treatment prescriptions identified below are general recommendations. All areas identified will not require treatment. The idea of these prescriptions is to make the road passable in a variety of emergency situations. On the ground adaptations will need to be made.

1. Escape Route Treatments (listed in priority order)

- a. Escape Route (CR 6 V V)
Approximate size: 30ac
Average % Slope: 10-40
Vegetative Cover type: Sage 100%
Width: 150'

Description: This escape route is CR 6 V V and is located in the North West corner of the subdivision. It is important for several reasons: Dense continuous fuels and location to structures. The area is dominated by sage with a grass under story. In the event of a wildfire on the back side of Mud Gulch this break will serve as an evacuation route. The road starts down in Lick Creek Canyon and continues uphill. It then follows along a ridge line with a saddle at the top of the hill. Wildfires burn faster uphill and saddles funnel air and cause extreme fire behavior. With out sage reduction this escape route could become impassable during a wildfire emergency.

The following tracts will have to be involved in order for the escape route to achieve its full potential. 17, 14, 11, 9, 7, 5, 3, 1.

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Sage Mowing with a Brush Hog: 16.5 acres * \$60.00 = \$990.00

Approx. Total Cost: \$990.00

* Grants can be applied for to cover 50% of the cost, HOA and landowners should work with CSFS in applying. (Review grant section on page 44)

b. Escape route (CR 6 Y Y)

Approximate size: 74 acres

Average % slope: 5-30+

Vegetative cover types: Timber 5 % (DF) Sage 95%

Width: 150' (sage) 300'-350' (timber) (% slope dependent)

Description: this escape route is located in the South West corner of the subdivision. The route utilizes CR 6YY to CR 38. It is important for the following reasons: prevailing winds are out of South West, dense continuous fuels, location to structures, and canyon like topography. The last two reasons are the most important. The area has a high concentration of structures. In many areas the drainage walls are steep on both sides with dense continuous vegetation. In the event of a fire getting into this valley it could move rapidly and send fire up both sides of the valley walls. Fire burns up hill rapidly, due to preheating of fuels and fire brands. A fire in this valley could spread rapidly with little warning. An adequate escape route is essential for the safety of the residents in this area.

The following tracts of land need to be involved in order for the fuel break to be fully successful. Tracts: 32,33,35,38,40,41,42,46,48,52,54.

The following tracts have already done their part of the project: 46, 54,55,40,31.

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Douglas fir: Minimum crown spacing of 12 feet, Reduce stocking to 80 BAF/ac, Target is understory stock <12 inches however larger trees may be taken in order to achieve desired BAF/ac, Prune

residual stand up 10 feet, Remove/chip/pile burn all slash and heavy downed fuels.

- 2) Sage and Grass: Mow all vegetation to a maximum height of 6 inches

Cost

Timber Thinning: 10 acres * \$1,500 = \$15,000

Sage Mastication with Tracked Machine (due to slope =30%) 20acres * \$125.00 = \$2,500

Sage Mowing with Brush Hog: 44 acres * \$60.00 = \$2,200.00

Approx. Total Cost: \$ 20,140

Grants can be applied for to cover 50% of the costs, HOA and landowners should work with CSFS in applying. (Review grant section on pg 44)

- c. Escape route (High Country Rd, Ponderosa Trail, Quartz Hill Rd)
Approximate Size: 29 ac
Average % slope: 5-15
Vegetative Cover Type 100% sage
Width: 150'

Description: This escape route is located in the central south east area of the subdivision. The escape route will be utilized by multiple residents. The fuels in the area are dense and continuous sage with grass understory. The route covers High Country Rd, Ponderosa trail, and ending at CR 6 Y Y and onto CR # 38. It winds through several small drainages. Wildfires can be funneled up these drainages with extreme fire behavior. In the event of a wildfire this treated escape route will be essential to the residents in this area.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. 3, 5, 7, 9, 30, BLM

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Sage Mowing with a Brush Hog: 29 acres * \$60.00 = \$1,740.00

Approx. Total Cost: \$1,740.00

* Grants can be applied for to cover 50% of the cost, HOA and landowners should work with CSFS in applying. (Review grant section on page 44)

d. Escape route (Iris lane, Aspen Glen lane, Deer Play run)

Approximate Size: 32 ac

Average % slope: 5-15

Vegetative Cover Type 100% sage

Width: 150'

Description: This escape route runs along the most eastern lots of the subdivision. The road is at the top of a slightly graded hill (5% slope). In the event of a fire if this road has not treated. It will not be a safe place to travel during a wildfire emergency. The escape route will be utilized by multiple residents. The fuels in the area are dense and continuous sage with a grass understory. In the event of a wildfire this escape route will be essential to the residents in this area.

The following tracts will have to be involved in order for the fuel break to achieve its full potential. 17, 10, 15r, 16, 21, 22, 24, 25

* Residents are encouraged to contact neighbors and remind them of the importance of these treatments for the overall safety of the community

Prescription according to fuel type

- 1) Sage and Grass: Mow all vegetation to a maximum height of 6 inches using brush hog type machinery.

Cost

Sage Mowing with a Brush Hog: 32 acres * \$60.00 = \$1,920.00

Approx. Total Cost: \$1,920.00

* Grants can be applied for to cover 50% of the cost, HOA and landowners should work with CSFS in applying. (Review grant section on page 44)

** Note: These escape route prescriptions are general and must be adapted to on the ground fuels and topography. Some areas might not need the entire recommended treatment size, while other may require increased fuel reduction. Whenever possible treatments should follow the contour of the land in order to blend into the landscape, small islands of untreated vegetation can be left for aesthetics.

G. Safety Zone Locations (refer to ER/SZ map on pg 43)

1. Primary

Location: .25 miles north of subdivision on CR # 38

Vegetation: Sage w/grass understory

Maintenance: Sage reduction required every 10 years (Next maintenance due 2018)

Ownership: BLM

2. Secondary 1

Location: Junction of High Country Rd and CR 6 Y Y

Vegetation: Sage with grass understory and riparian species (willow, service berry)

Maintenance: Sage reduction required every 10 years (next maintenance 2018)

Ownership: Saguache County, Private

Capacity: 100 people w/ vehicles (est.)

3. Secondary 2

Location: Ponderosa Trail (1mile south of Gold Basin)

Vegetation: Sage with grass understory

Maintenance: Sage reduction required every 10 years. Currently this sight is in need of more sage reduction.

Ownership: Saguache county and BLM

Capacity: Currently 100 people with vehicles (est.)

4. Secondary 3

Location: Town of Iris

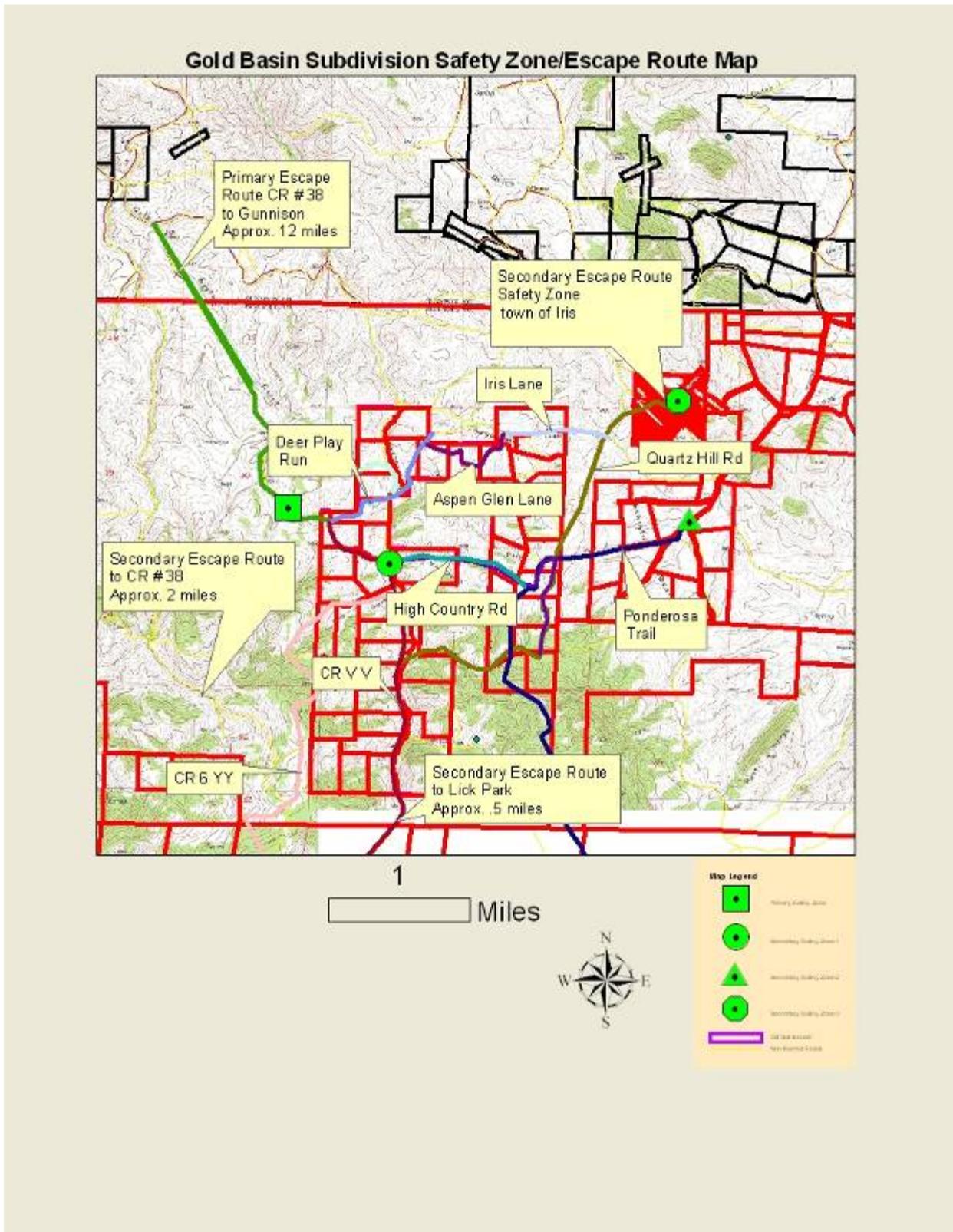
Vegetation: Sage with grass

Maintenance: Mowing required every 10 years

Ownership: Private and BLM

Capacity: 100 people and vehicles

H. Gold Basin Subdivision Safety Zone/Escape Route Map



I. Cost/Grants

Vegetation management is a costly procedure in the Gold Basin subdivision area. The average cost of small acreage timber fuels mitigation in the Gold Basin subdivision has been \$1500/acre. There are cost saving using a mechanized equipment verses a hand crew. However, steep slopes (40+% slope) can limit the use of heavy machinery. Most material removed from fuels mitigation projects is less than marketable, due to the small diameter of the wood removed. Generally during a fuels mitigation project the larger trees are not taken. The smaller diameter and suppressed understory trees are removed. Industries are not in place to utilize small diameter material. Most material is masticated on site or piled and burned.

Due to the high cost associated with fuels mitigation, funding for Gold Basin's large acreage mitigation projects needs to come from multiple sources. The first two sources are from within the subdivision, homeowner dues and volunteer hours. The third source of funding is grants. The main program that Gold Basin should try to take advantage of is the Western States Wildland Urban Interface Competitive grant (WSWUICG). The WSWUICG is a 50/50 type grant that comes from federal appropriations and is distributed through the state and private forestry branch of the USFS. These programs can be applied for through the local Colorado State Forest Service office. Competition is high and funds are not guaranteed for every applicant.

J. Bureau of Land Management Land Prioritized Fuel Treatments (BLM Treatment Map Pg 47)

The Bureau of Land Management (BLM), Gunnison Field Office, has identified the Gold Basin Subdivision as a high priority for fuels reduction and forest restoration projects. Under the National Fire Plan, the BLM has developed a long term plan to treat hazardous fuels and restore the health of aspen and conifer stands near Gold Basin Subdivision. Not all of the future specific projects have been laid out or identified, an Environmental Assessment (#CO-160-2004-006EA) has been written for the Gold Basin CWPP area. The assessment has treatments or prescriptions written according to vegetative types.

The Gold Basin Fuel Reduction and Timber Stand Improvement Project attempts to address fire hazard and forest stand conditions on BLM lands that are directly adjacent to the Gold Basin subdivision. Treatments considered in this plan include brush removal, prescribed fire understory thinning of conifer stands and aspen regeneration cuts. Treatments will be implemented annually and will be dependent upon annual funding levels.

The prescription for sagebrush areas is a combination of mowing and prescribed fire. These brush treatments have a goal of creating patchy fuel breaks or a mosaic landscape. This type of treatment addresses both aesthetics concerns and safety. The patchy treatment gives the appearance of an untreated area, while still breaking up the continuity of the fuels. In the event of a wildfire, the treated areas will slow the spread of fire by reducing the fuel. The BLM has treated 288 acres of sage with in the Gold Basin WUI area.

Aspen are a very desirable species in a WUI setting. They have a moderate wildfire hazard when compared to conifer. Conifer needles contain volatile chemicals in its needles that ignite easily. This allows conifer trees to readily burn and spread rapidly. Because of their low tendency to burn, aspen are often used as anchor points for fuel breaks. Both prescriptions were designed to promote the longevity, health and low wildfire risk of the Aspen in the Gold Basin.

Aspen stands are a network of stems interconnected by a common root system. Generally they have a biological maturity age of 80-100 years. Once this age is reached the stand begins to show signs of decay (fungus, loss of crown density) and begins to decline. Once the stand is in a state of decline the central root system also begins to die. If the central root system dies the stand is lost and will never grow back. Because of the central root system aspen can be rapidly regenerated. Patch cuts will enable the root system to quickly re-sprout and regenerate the stand. This is the treatment that the BLM has prescribed for many of the Gold Basin WUI pure aspen stands that are in decline.

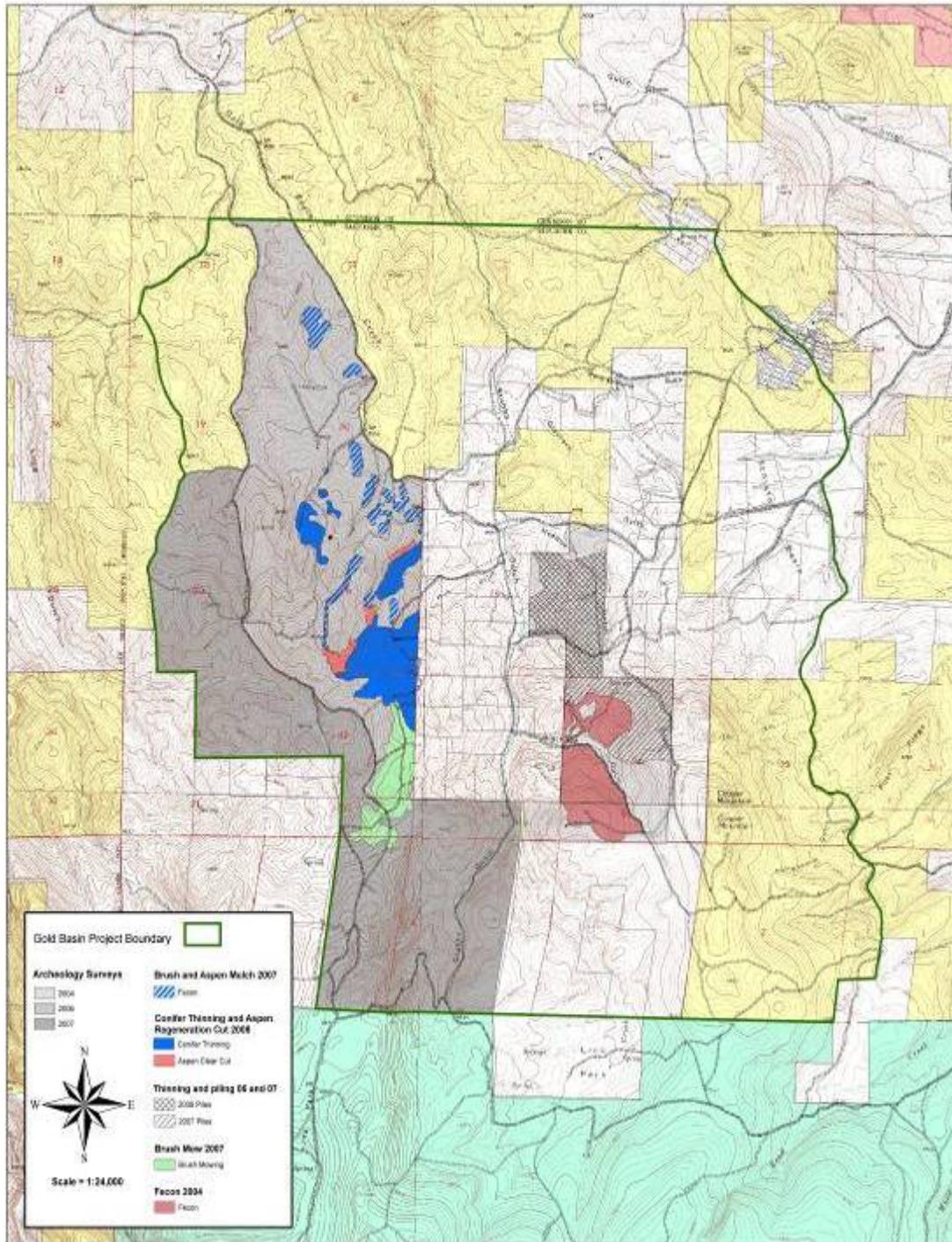
Over maturing stands of aspen are often susceptible to conifer invasion. This is when shade tolerant conifers grow in the understory of aspen. This vegetative mix is referred to as an aspen conifer mix. This mix can give a false sense of safety. As the conifer grows in the understory it makes dense and continuous fuels. Although the stand appears to be a moderate wildfire risk it is in fact a high to extreme risk. This is due to the crowning potential of conifer. The trees in the undertsory will carry fire which could spread to a more dangerous and receptive fuel. The BLM prescription for this fuel type will break up the continuity of the conifer component. It also addresses the general regeneration needs of the stands, referred to in the previous paragraph. The BLM is using a Fecon Bull hog grinding machine to regenerate 82 acres of the low country aspen (-9,000) stands. This is a more economical way of treating these stands than a hand crew.

Douglas fir stands will be thinned from below, removing many of the small diameter trees (ladder fuels). This particular type of fuel predisposes the stand to crown fires. The small trees can allow a controllable ground fire to climb up into the crowns of trees. Reducing the contain ability of the fire, using conventional fire fighting methods. The residual stand will be thinned in order to break up the continuity of the fuels. The prescription calls for removal of 90% of conifer trees 8 inches or less growing under or within 20 feet of larger trees. Remove 20% of conifers that are 8-10 inch with the same spacing guidelines. In areas that are dominated by trees in the 8-10 inch class a 20 foot spacing guideline should be followed. All branches of residual trees should be limbed up 6 feet. Again this will decrease the ladder fuel effect. In conifer stands with aspen, conifer will be thinned to 20 foot spacing between stems. The BLM is treating 185 acres of Douglas fir in this manner. The project will be complete in the fall of 2008.

Fire is capricious and will always find the weakest link in your and the subdivisions' defenses. One of the ways that these breaches in wildfire defense can be avoided is through cross boundary treatments. This is where treatments are extended beyond the federal land boundaries and onto private ground. Mitigation treatments are most effective when anchored into less flammable areas (natural fire barriers, less

flammable vegetation or roads). Many times these are not always found on public property and the fuel breaks never achieve their full potential. It is then the duty of the adjacent landowner to step up and take an active roll in the safety of both themselves and the subdivision. Wildfire safety has to be a collaborative effort in order to have an end product that a fire will respect. The effort must be equally both on the public and private side. Refer to the fuel break map on [page 35](#) if your property is located with in one of the recommended fuel break areas then you are encouraged to contact the Colorado State Forest Service or your HOA in order to see how you can improve the safety of your subdivision.

K. BLM Treatment Map



APPENDIX 1

DEFINITIONS

Basil Area Factor (BAF) is a method used to take a sampling of the volume in a given area. A prism is used that bends the light displacing portions of the tree bole. Each specific prism has a factor amount (10, 20, 40 ect.) which limits the amount of light bent. By looking at trees in a given area the prism show which trees to tally for a given sampling rate.

CRITICAL FIRE WEATHER is a set of weather conditions (usually a combination of low relative humidity and wind) whose effects on fire behavior make control difficult and threaten fire fighter safety.

DEFENSIBLE SPACE is an area either natural or human-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

FIRE CHIEF is the chief officer or the chief officer=s authorized representative of the fire department serving the jurisdiction.

FIRE HAZARD is a fuel complex defined by kind, arrangement, volume, condition and location that determines the degree of both ease and suppression difficulty.

FIRE RESISTIVE CONSTRUCTION is construction to resist the spread of fire. For descriptions , see the Building Code.

FIRE WEATHER is weather conditions favorable to the ignition and rapid spread of fire. In wildfires, this generally includes high temperatures combined with strong winds and low humidity. See ACritical fire weather.@

FUEL BREAK is an area, strategically located for fighting anticipated fires, where the native vegetation has been permanently modified or replaced so that fires burning into it can be more easily controlled. Fuel beaks divide fire-prone areas into smaller areas for easier fire control and to provide access for fire fighting.

FUEL, HEAVY, is fuel consisting of round wood 3-to 8 inches (76 to 203mm) in diameter.

FUEL, LIGHT, is fuel consisting of herbaceous plants and round wood less than 1/4 inch (6.4mm) in diameter.

FUEL-LOADING is the oven dry weight of fuels in a given area, usually expressed in tons per acre (T/A) (tons/ha) or in pounds per acre (lb/a) (kg/ha). Fuel loading may be referenced to fuel size or timelag categories, and may include surface fuels or total fuels.

FUEL, MEDIUM is fuel consisting of round wood 1/4 to 3 inches(6.4 to 76mm) in diameter.

FUEL MODIFICATION is a method of modifying fuel load by reducing the amount of nonfire-resistive vegetation or altering the type of vegetation to reduce the fuel load.

FUEL MOSAIC is a fuel modification system that provides for the creation of islands and irregular boundaries to reduce the visual and ecological impact of fuel modification.

GREENBELT is a fuel break designated for use other than fire protection.

SLOPE is the variation of terrain from the horizontal; the number of feet (meters) rise or fall per 100 feet (30 480 mm) measured horizontally, expressed as a percentage.

URBAN-WILDLAND INTERFACE AREA is that geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

WILDFIRE is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures.

WILDLAND is an area in which development is essentially nonexistent, except for roads, railroads, power lines and similar facilities.

APPENDIX 2

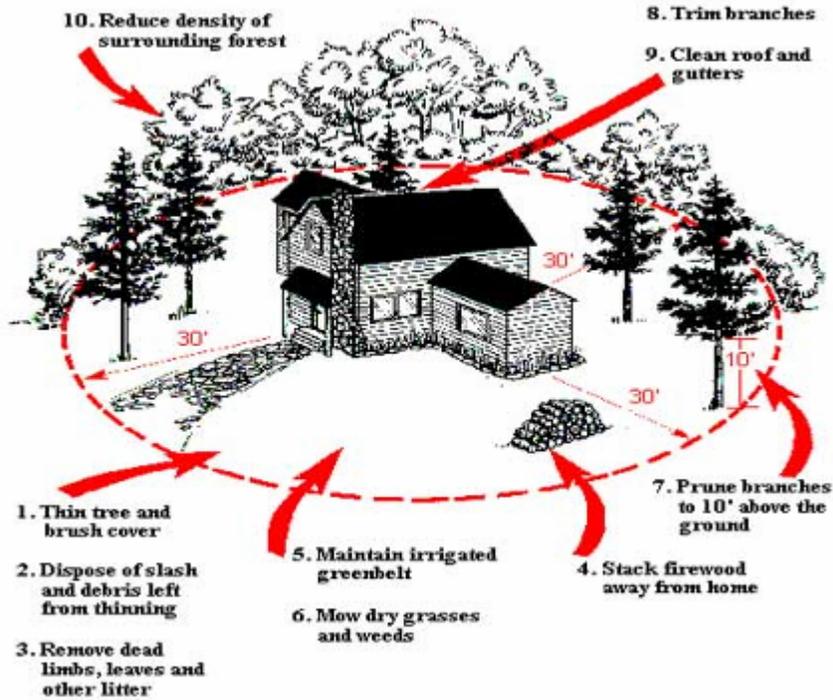
DEFENSIBLE SPACE GUIDELINES

Definition: An area either natural or human-made, where material capable of allowing a fire to spread unchecked has been treated, cleared or modified to slow the rate and intensity of an advancing wildfire and to create an area for fire suppression operations to occur.

Goal : To provide an area from which fire suppression personnel can effectively operate during a wildfire.

- Action :
- a. Thin conifer trees so there is a minimum distance of 10 feet between tree foliage
 - b. Separate brush clumps from each other by a minimum of 10 feet.
 - c. Prune all tree limbs to a minimum height of 10 feet (pine, fir, spruce) or 4 feet (pinon, juniper), and remove all ground fuel below them.
 - d. Remove dead/downed wood and mow grass/weeds to a height of less than 4 inches.
 - e. Incorporate entire property, subdivision, and adjacent ownerships.

2A - Additional Defensible Space Information

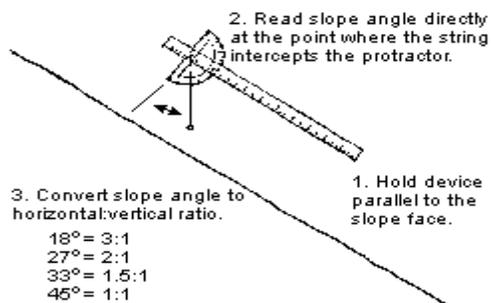


2B - You can create a simple tool out of household materials to help you determine your slope.

Materials:

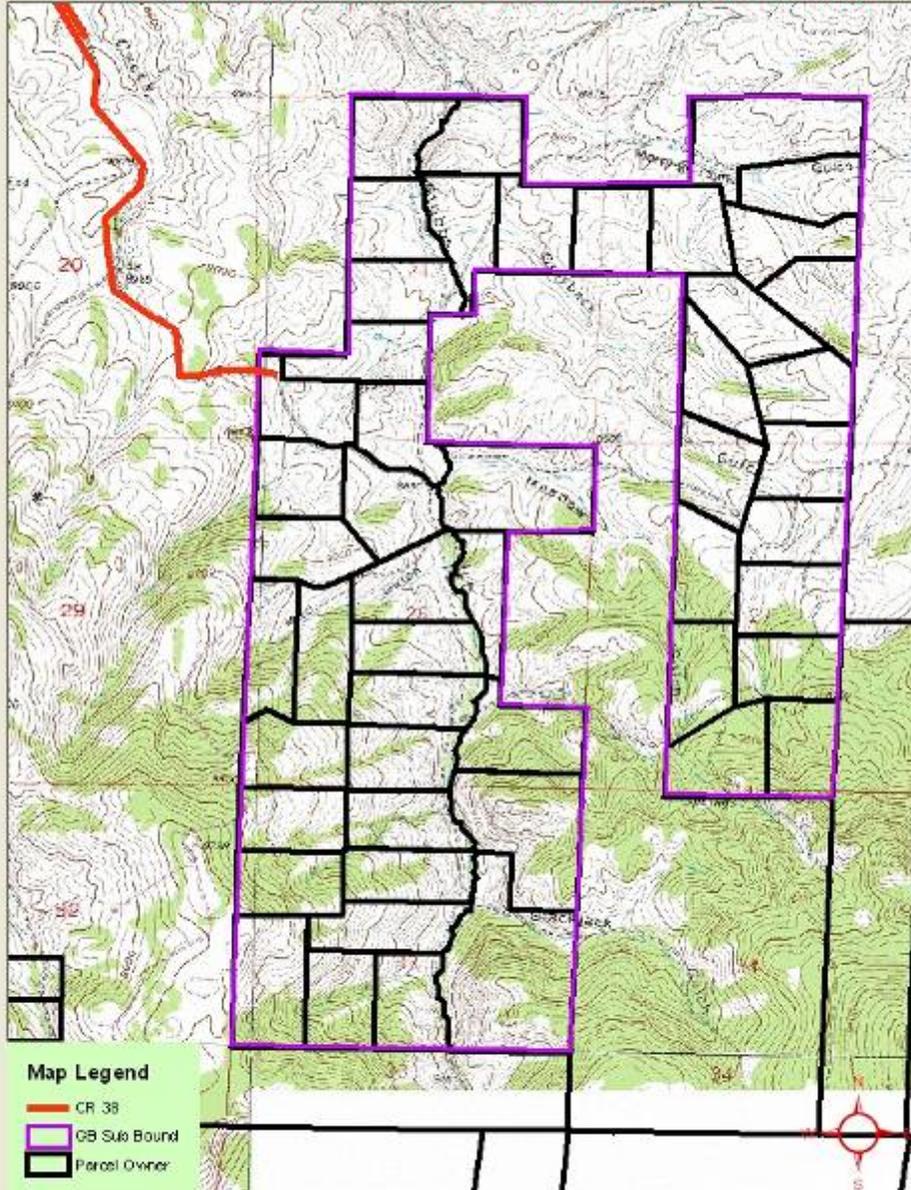
- Protractor
- String
- Weight (heavy washer or something similar)
- Yard or meter stick
- Scientific calculator

Tie the weight to one end of the string. Use the other end of the string to secure the protractor to the yardstick as the diagram indicates. Disregard step 3, instead take the slope angle in degrees and multiply it by tangent (using a scientific calculator), then multiply that number by 100 to get % slope.

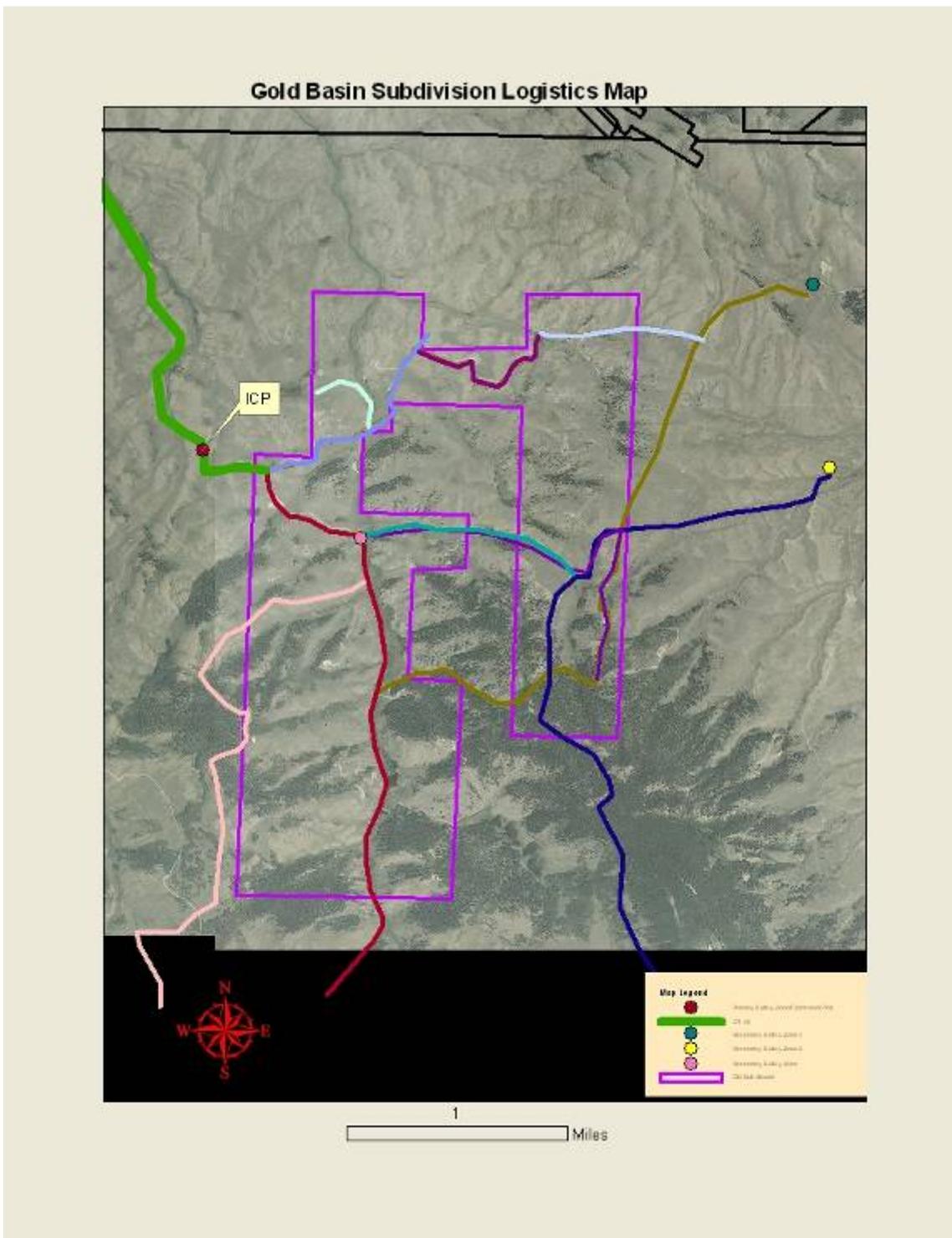


APPENDIX 3

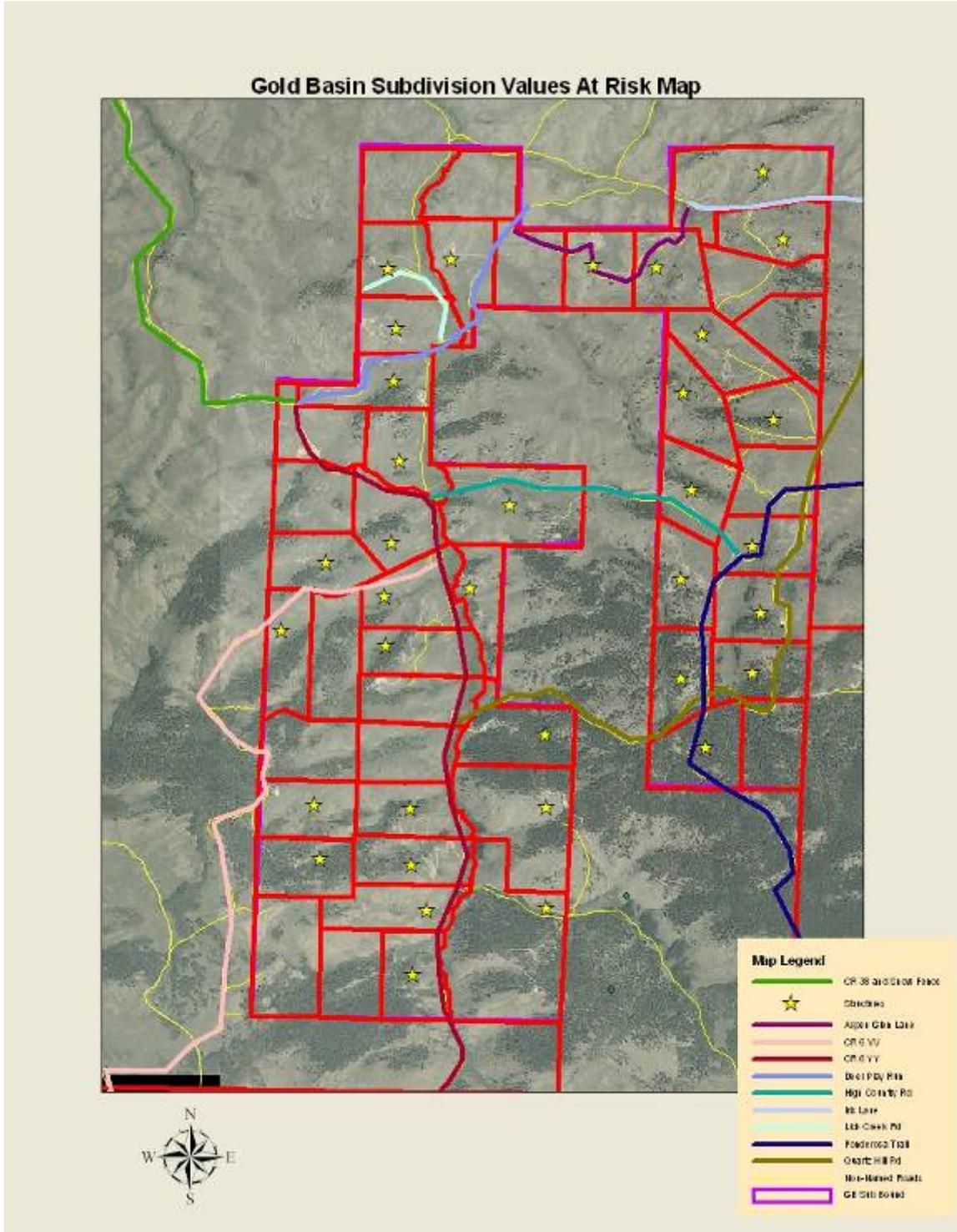
Gold Basin Subdivision 24K Topographic Map



APPENDIX 4

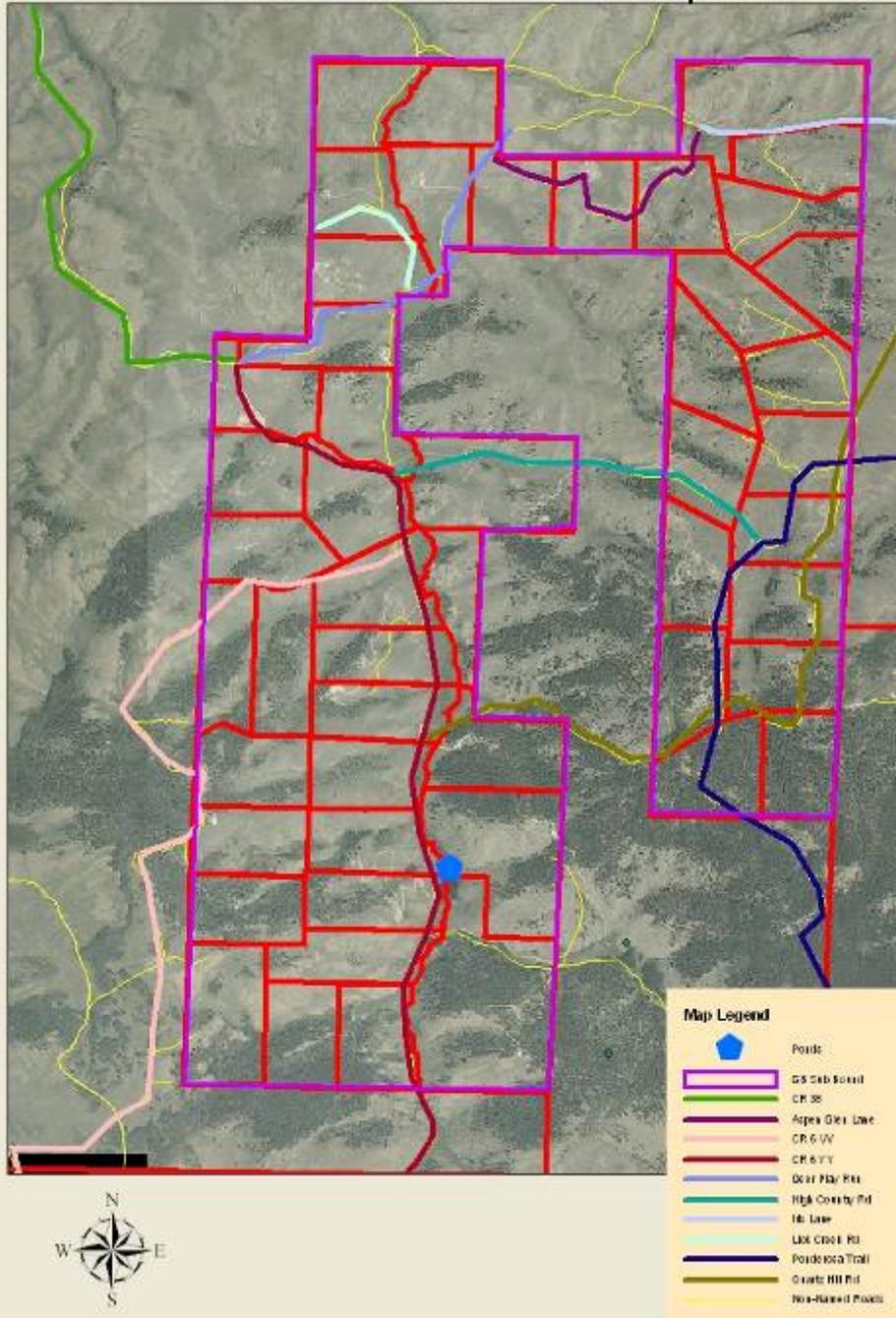


APPENDIX 5



APPENDIX 6

Gold Basin Subdivision Water Source Map



APPENDIX 7

Common Aspen Disease found in the Gold Basin Subdivision area

Cankers

Canker diseases are among the primary agents in Aspen mortality. The canker is a symptom of fungus. Generally it is an area of dark black discoloration with irregular folds of growth or areas of orange ooze. The fungus enters the tree through a wound and invades the inner bark and cambium. This is very important to remember when working around Aspen trees.

1. Sooty-bark canker: Description: Considered the most serious, for it tends to occur on larger trees (100+ yrs) and kills within 3-10 years. Young cankers first appear on the bark as sunken oval areas. The bark killed each year by the fungus is readily apparent and begins to slough after 2-3 years. The dead inner bark crumbles to soot like residue. The outer bark sloughs faster in the central portion giving the tree a barber pole appearance.

2. *Cryptosphaeria* canker: Description: This fungus causes branch, sprout, and sapling mortality; trunk cankers; and discoloration. The cankers are long and narrow, spiraling around the tree like a snake, hence the common name "snake canker. Small trees may be killed within a year after infection. Large trees may have cankers that girdle branches and enlarge onto trunk. Bark near edges usually becomes discolored light brown to orange. The dead, black, stringy, soot like bark adheres tightly to the sapwood and contains scattered lens shaped, light colored areas.

3. *Cytospora* canker: Description: This fungus is weakly parasitic and normally attacks stressed trees. This canker is the most common one found. It is generally found with other more aggressive fungus. Small branches and twigs can be killed without the formation of a distinct canker. Trunk cankers usually have an irregular outline, with sunken, orange discolored areas with orange ooze. The first indication of infection is the orange discoloration of the bark caused by wounds. After infection the inner bark turns dark brown and the sapwood underneath light brown. The dead bark falls off of the tree in large pieces after 2-3 years.

Aspen Heart Rot

This fungus produces a fruiting body called conks at branch stubs or wounds on the bole of the tree. Sporulation begins in late winter or early spring and can continue throughout the summer and fall when moist weather prevails. Airborne spores typically infect dead branch stubs and fresh wounds. This is again important to remember when working around aspen especially in damp weather. Fungal growth results in a yellow-white rot with brown or black zone lines traversing decayed wood. The fruiting body or conks are hoofed shaped with gray, or brown upper surface and tan to white lower pore. The presence of conks is indicative of significant stem decay.

1. *Phellinus tremulae*: Description: Produces perennial fruiting bodies or conk. The conk is a hoofed shaped fungus with orange and black coloration. The presence of the conk is indicative of significant stem decay. Trees with fruiting bodies should be monitored closely especially around structures, due to their unsoundness.

APPENDIX 8

Common conifer insects found in Gold Basin Subdivision area

Bark Beetle

Bark beetles are the most destructive insects in the western coniferous forest. Adult bark beetles bore through the outer bark to the inner cambial layer, where they channel out galleries in which to lay eggs. Larvae hatch in these galleries and may excavate additional channels as they feed. As bark beetles carve out galleries they introduce blue-stain fungi. This fungus grows in the wood interfering with the tree's water transport system. Tree deterioration and eventual mortality result from two factors. 1) tree girdling caused by gallery excavation 2) spread of blue stain fungi. Infested trees can be recognized at a distance by fading foliage high in the tree, initially a light green, changing to a light straw color in a few weeks, and eventually to a yellowish brown. Close inspection may show a fine red-brown dust in the bark crevices and at the base of the tree trunk. Cream to dark red pitch tubes, resin mixed with boring dust, 1/4-1/2 inches in diameter, are an indication of a successful bark beetle attack. In some cases where the number of attacking beetles is low, the tree may have sufficient resin available to eject the attacking beetle by extruding resin at the attack site (pitching out). Pitch tubes of whitish resin 3/4" long. The "pitching out tube" is void of boring dust, because the beetle was unsuccessful.

Bark beetles are a natural part of the ecosystem. In Gold Basin subdivision the beetles are found in endemic levels. The beetles attack weak and suppressed trees. The best preventative approach is a proactive one. This involves managing the forest through thinning. Thinning improves the vigor of the residual stand. Vigorous trees have a better chance of not attracting beetles and also defending themselves during attacks.

Common Bark Beetles found in the Gold Basin Subdivision Area

1. Douglas fir bark beetle (*Dendroctonus pseudotsugae*)

Description: Adult beetles are 1/4 inch long. Some individuals are all black; others have black head and thorax with reddish brown wing covers. The beetle prefers two situations: large diameter over mature trees and stressed suppressed trees. Douglas fir bark beetles prefer trees >8 inches diameter. The beetles spend winter as either large larvae or adults under the bark. Adults typically begin emerging in late April and May but over 75% of the population emerges the last three weeks of June.

Management: On a small scale (5-10 trees) preventative spraying can be effective. The spray should be applied in late April in order to accommodate for any early developers. On a large scale the best approach is a proactive one. This involves managing the forest for a vigorous stand. Thinning the forest to the correct stocking will increase the chances of not attracting the beetle (low stressed/suppressed tree amounts). It will also increase the chances of your forest defending itself against an attack.

Community Wildfire Protection Plan Database Tracking Sheet

Minimum Standards

Participants:

- Local Government
- Local Fire Authority
- CSFS
- Federal Land Management Agencies
- Community/stakeholders (non-government)

Components:

- WUI definition
- Preparedness to respond to wildfire
- Risk analysis
- Fuels treatment priorities & methods
- Structural ignitability
- Implementation plan

Tracking Items

Name of Community	Gold Basin
Size of Community (acres and/or # homes)	2,010 acres / 33 homes
CSFS District	Gunnison
County	Gunnison
Planning Status (completed, revised, in progress)	Complete
Implementation Status	Idle
Land ownerships covered by plan	Private, BLM
Key CWPP Contact	David Casey (CSFS)
Contractor/consultants used	CSFS

Printed Name: David Casey

Signature: David Casey

Date Completed: 04/04/08

Signature Page

Jeanette E. Halter 4/20/08
Gold Basin Subdivision Date

Eric C. Aye 4-4-08
CSFS District Forester Date

K. Brown 4/3/08
Saguache County OEM Date

K. McDaniel 3/20/08
USDI BLM Date